

Prerequisite Skills
Inventory for Grade 4
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Name _____

1. The ice skating rink rented 238 pairs of ice skates one weekend. What is 238 rounded to the nearest hundred?

200

2. The theater has 329 fixed seats and 174 moveable seats. What could be a **reasonable estimate** of the total number of seats in the theater?

Possible answer: 500 seats

3. On Saturday, the lifeguard counted 416 swimmers at the beach. On Sunday the lifeguard counted 283 swimmers at the beach. How many swimmers were at the beach in all?

699 swimmers

4. Mr. Li drove 287 miles from Hawk City to Bear Town. He then drove 175 miles from Bear Town to Cedar City. How many miles did Mr. Li drive in all?

462 miles

5. Hector earned 942 points in his first round of a video game. Sarah earned 791 points in her first round of the same video game. What could be a **reasonable estimate** of how many more points Hector earned than Sarah in the first round of the video game?

Possible answer: 100 points

6. Mrs. Rourke's class collected 385 cans during a recycling drive. Mr. Hardy's class collected 259 cans during the same recycling drive. How many more cans did Mrs. Rourke's class collect than Mr. Hardy's class?

126 more cans

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7. Campers go to Ridgeline Camp for one week sessions. During the first week of camp, there were 112 campers. During the second week, there were 15 fewer campers than in the first week. How many campers were at camp during both weeks?

Week 1	112 campers
Week 2	15 campers

_____ campers	_____ campers
---------------	---------------

209 campers

9. Kevin divided his model airplane collection into 3 groups. Each group has 5 airplanes.


How many model airplanes does Kevin have in his collection?

15 airplanes

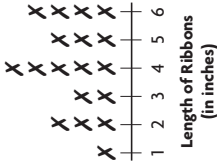
10. There are 4 jars for markers in Maya's class. Maya found 0 markers in each jar. Write a number sentence that shows how many markers Maya found in all.

Possible answers: $4 \times 0 = 0$

11. Mrs. Murphy bought 2 boxes of granola bars. Each box has 6 bars. How many granola bars did Mrs. Murphy buy in all?

12 granola bars

8. A seamstress measured the lengths of several ribbons. She recorded the data in the line plot below.


How many ribbons are 5 inches long?

3 ribbons

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12. Wendy writes a pattern of numbers.
21, 28, 35, 42, 49
How can you describe this pattern?
Possible answer: Add 7.

13. Find a pattern used in the table.
Then complete the table.

Necklaces	2	3	4	5	6
Beads	18	27	36		

Possible answer: Multiply by 9; 45 and 54

14. Sam plans to buy 24 slices of pizza for a party. There are 8 slices in each whole pizza. How many pizzas does Sam need to buy?
 $p \times 8 = 24$
3 pizzas

15. One pack of construction paper has 40 sheets of paper. How many sheets are in 6 packs?
240 sheets

16. Omar writes a set of related facts. One of the facts he writes is $30 \div 5 = 6$. Write an equation that is included in the same set of related facts.
Possible answers: $30 \div 6 = 5$, $5 \times 6 = 30$, $6 \times 5 = 30$

17. Melody brought 5 bones to the dog park. She gave an equal number of bones to each of 5 dogs. How many bones did Melody give to each dog?
1 bone

18. Simone wants to put 10 photos on each page of her scrap book. She has picked out 70 photos she wants to use. How many scrap book pages does Simone use?
7 pages

19. A school lunch table seats 6 students. How many lunch tables are needed to seat 18 students?
3 tables

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20. Brad's little brother has a storage box for his toy cars. Each section of the box holds 8 toy cars. How many sections does the box have if it holds 56 cars?
7 sections

21. Ryan arranged 40 blocks in 8 equal rows. How many blocks are in each row?
5 blocks

22. Susie separates 18 stickers into 9 equal groups. How many stickers are in each group?
2 stickers

23. Luke needs to divide a sheet of paper into two equal parts. Draw a line to divide the square into 2 equal parts.

Possible line is shown.

24. Toni made a model to show the number of students on the playground. The shaded part of the model shows the fraction of students on the slide.

What fraction of students are on the slide?
 $\frac{1}{8}$

25. A student shaded this model. The shaded part shows what part of the pottery glazes in the art room have glitter in them.

What fraction of the pottery glazes have glitter?
 $\frac{3}{6}$ or $\frac{1}{2}$

26. Mrs. Parker bought $\frac{3}{4}$ pound of strawberries and $\frac{1}{4}$ pound of raspberries. Write a statement to compare the amounts of berries.
Possible answer: Mrs. Parker bought more strawberries than raspberries.

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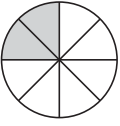
27. Of all the students in Matea's class, $\frac{2}{3}$ are wearing sneakers and $\frac{1}{6}$ are wearing sandals. What symbol compares the fractions correctly? Write $<$, $>$, or $=$.

$\frac{2}{3} > \frac{1}{6}$

28. A scientist measures the lengths of three beetles. The first beetle is $\frac{4}{8}$ inch long. The second beetle is $\frac{2}{8}$ inch long. The third beetle is $\frac{7}{8}$ inch long. Write the fractions in order from **least to greatest**.

$\frac{2}{8}, \frac{4}{8}, \frac{7}{8}$

29. Hannah is selling slices of pie at the bake sale. The pie has 8 slices. She has sold $\frac{1}{4}$ of the slices.



What fraction with a denominator of 8 is equal to $\frac{1}{4}$?

$\frac{2}{8}$

30. Jake looked at the clock before leaving for school. The hour hand was between the 7 and the 8. The minute hand was on the 9. What time did Jake leave for school?

7:45

31. Ling started running at 10:18 A.M. She finished running at 10:50 A.M. How long did Ling run?

32 minutes

32. A batch of muffins needs to bake in the oven for 24 minutes. Scott puts the muffins in the oven at 2:17 P.M. What time will he take the muffins out of the oven?

2:41 P.M.

33. Latonya fills a drinking glass with water. Write *more than* 1 liter, *about* 1 liter, or *less than* 1 liter to estimate how much water the glass will hold.

less than 1 liter

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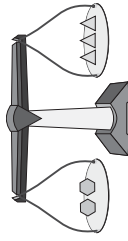
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34. Julia wants to find the mass of her textbooks. Write *grams* or *kilograms* to name the **best** unit to use to find the mass of the textbooks.

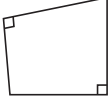
kilograms

35. Jillian uses a balance to compare the masses of the objects shown. Use the words *is less than*, *is the same*, or *is more than* to compare the masses of the objects.



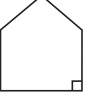
The mass of the objects is the same

36. How many right angles does this shape appear to have?



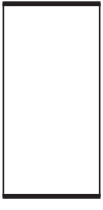
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37. Carrie drew this shape. Use *right angle*, *less than a right angle*, or *greater than a right angle* to describe the marked angle.



right angle

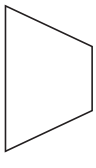
38. Hank used line segments to draw a shape. Look at the bold sides of his shape.



Write *intersecting*, *perpendicular*, or *parallel* to describe the sides.

parallel

39. Blake drew this shape.



Name Blake's quadrilateral.

trapezoid

40. Lisa drew a quadrilateral with 4 right angles. The parallel sides are equal length. Which quadrilateral best describes her drawing?

Possible answers: rectangle, square

STOP 

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Choose the correct answer.

1. Daniel plans to use a strategy to find 18×470 . Which expression shows a strategy he could use?

(A) $4 \times 5 \times 470$
☒ (B) $3 \times 6 \times 470$
 (C) $6 \times 3 \times 47$
 (D) $18 \times 0 \times 470$

2. Mia has 2,590 digital photos saved on her computer. Ella has 5 times as many saved on her computer. How many digital photos does Ella have saved on her computer?

☒ (A) 12,950
 (B) 12,550
 (C) 11,550
 (D) 10,950

3. A factory can make 2,035 markers in one hour. Which is the **best** estimate of how many markers can be made in 6 hours?

(A) 1,200 markers
 (B) 2,000 markers
☒ (C) 12,000 markers
 (D) 20,000 markers

GO ON

4. Ryan made this model to find the product of a 3-digit number and a 1-digit number.

What multiplication sentence represents Ryan's model?

☒ (A) $5 \times 264 = 1,320$
 (B) $5 \times 260 = 1,300$
 (C) $5 \times 246 = 1,230$
 (D) $5 \times 204 = 1,020$

5. Kate lives 0.6 mile from her school. Which fraction is equivalent to 0.6?

(A) $\frac{0}{6}$
 (B) $\frac{6}{100}$
 (C) $\frac{1}{6}$
☒ (D) $\frac{6}{10}$

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6. Anna jogged $1\frac{3}{10}$ miles on a path in the park. What is this distance written as a decimal?

(A) 0.13 mile
 (B) 1.03 miles
☒ (C) 1.3 miles
 (D) 13 miles

7. Rico walked for $\frac{3}{10}$ mile. Then he walked for $\frac{24}{100}$ mile. How far did he walk in all?

☒ (A) $\frac{54}{100}$ mile
 (B) $\frac{5}{10}$ mile
 (C) $\frac{30}{100}$ mile
 (D) $\frac{27}{100}$ mile

8. What is the measure of the unknown angle in the figure?

(A) 180°
 (B) 100°
☒ (C) 80°
 (D) 70°

GO ON

9. David drew the angle below.

What name should David give his angle?

(A) obtuse angle
☒ (B) acute angle
 (C) right angle
 (D) straight angle

10. Maria put two angles together to form a straight angle. One angle measures 112° . What is the measure of the other angle?

(A) 78°
☒ (B) 68°
 (C) 58°
 (D) 48°

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What name should David give his angle?

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GO ON

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Name _____ 11. How many degrees are in an angle that turns through $\frac{1}{2}$ of a circle? (A) 90° (B) 180° (C) 270° (D) 360°	14. Mark rode his bike $\frac{22}{8}$ miles. Which mixed number shows the fraction of miles he rode his bike? (A) $2\frac{6}{8}$ miles (B) $2\frac{4}{8}$ miles (C) $2\frac{3}{8}$ miles (D) $2\frac{1}{8}$ miles
12. Flora needs $\frac{3}{8}$ yard of blue ribbon and $\frac{2}{8}$ yard of red ribbon to make a bow for a present she is wrapping. How much ribbon does Flora need in all? (A) $\frac{1}{8}$ yard (B) $\frac{5}{16}$ yard (C) $\frac{5}{8}$ yard (D) $\frac{7}{8}$ yard	15. Zoey has $8\frac{1}{3}$ feet of blue yarn and $4\frac{2}{3}$ feet of green yarn. How much more blue yarn does Zoey have than green yarn? (A) $3\frac{1}{3}$ feet (B) $3\frac{2}{3}$ feet (C) $4\frac{1}{3}$ feet (D) $4\frac{2}{3}$ feet
13. Tyler brought $\frac{7}{12}$ pound of trail mix on a camping trip. He ate $\frac{4}{12}$ pound of the trail mix. How much trail mix is left? (A) $\frac{11}{12}$ pound (B) $\frac{4}{12}$ pound (C) $\frac{3}{12}$ pound (D) $\frac{1}{12}$ pound	18. Chen's friend Bob is helping him learn about prime numbers. Bob writes a list of numbers and asks Chen to choose the prime number. Which number should Chen choose? (A) 12 (B) 24 (C) 31 (D) 36

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Name _____ 16. Kayla has 36 flower stickers, 27 bird stickers, and 18 butterfly stickers. She wants to put an equal number of each type of sticker into bags so all of the bags will be the same. How many of each kind of sticker can Kayla put in each bag? (A) 9 (B) 1 or 9 (C) 1, 3, or 9 (D) 1, 3, 9, 12, or 18	19. Liz and Dave made a secret code. They wrote some numbers in the code to help them remember the pattern. 8, 11, 10, 13, 12, 15, 14, 17 What should be the next number in the code? (A) 15 (B) 16 (C) 18 (D) 20
17. Leah and Tony were playing a game. Leah was counting by 8s. Tony was counting by 3s. They paced the counting so they would say the first common number together. What is the first number they both said together? (A) 12 (B) 24 (C) 32 (D) 36	20. The Simmons family is taking a 2-week vacation to Alaska. How many days will their vacation last? (A) 7 days (B) 14 days (C) 21 days (D) 24 days
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21. The table shows a pattern for two units of customary length.

_____	_____
1	12
2	24
3	36
4	48

Which are the best labels for each column?

☐ A Miles, Yards
☐ B Yards, Feet
☐ C Yards, Inches
☒ D Feet, Inches

22. The tour of the space museum started at 10:45 A.M. It lasted for 1 hour 30 minutes. What time did the tour end?

☐ A 11:15 A.M.
☐ B 11:45 P.M.
☒ C 12:15 P.M.
☐ D 1:15 P.M.

23. Patrick mixed 3 quarts 1 pint of orange juice with 3 pints of cranberry juice and 1 pint of grape juice to make punch. How much punch does he have?

☒ A 5 quarts 1 pint
☐ B 5 quarts
☐ C 4 quarts 1 pint
☐ D 4 quarts

24. Karen scored 157,834 points on the third level of her computer game. What is the value of the digit 5 in 157,834?

☐ A 500,000
☒ B 50,000
☐ C 5,000
☐ D 500

25. Maria used number tiles to make the number 538,397. Jimmy used number tiles to make the number 583,397. Which statement about these numbers is correct?

☐ A $583,397 < 538,397$
☒ B $583,397 > 538,397$
☐ C $583,397 = 538,397$
☐ D $538,397 > 583,397$

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26. Pete's Pizza sold 65,182 pizzas the first year they were open. They sold 58,458 pizzas the second year. What was the total number of pizzas sold during the first two years of business?

☐ A 113,640
☐ B 123,540
☐ C 123,630
☒ D 123,640

27. The town Sean lives in has 48,968 people. The town Debra lives in has 73,815 people. How many more people live in Debra's town?

☒ A 24,847
☐ B 24,947
☐ C 25,847
☐ D 34,847

28. Molly builds a rectangular exercise pen for her hamsters.

What is the perimeter of the exercise pen?

☐ A 45 inches
☒ B 90 inches
☐ C 100 inches
☐ D 450 inches

29. Mr. Wilson is building a new patio off the back of his house.

How much tile does Mr. Wilson need to cover his patio?

☐ A 60 square feet
☐ B 200 square feet
☒ C 225 square feet
☐ D 275 square feet

30. Patel uses 150 feet of fencing to fence in his rectangular garden. The width of the garden is 25 feet. What is the length of the garden?

☐ A 65 feet
☐ B 40 feet
☒ C 50 feet
☐ D 60 feet

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31. One wall of Eric's bedroom is 15 feet wide and 8 feet high. A door on the wall is 7 feet high and 3 feet wide. How much wall paper will Eric need to cover the wall?

(A) 120 square feet
(B) 110 square feet
(C) 99 square feet
(D) 89 square feet

32. Which shows the **best** estimate to use to find 43×28 ?

(A) $40 \times 20 = 800$
(B) $45 \times 20 = 900$
(C) $40 \times 30 = 1,200$
(D) $50 \times 30 = 1,500$

34. From noon to 1 P.M., customers bought 85 pizzas at \$18 each. What is the total amount customers paid for the pizzas?

(A) \$1,430
(B) \$1,490
(C) \$1,530
(D) \$1,620

35. The Best Read bookstore has 48 boxes of books to be unpacked. Each box contains 24 books. How many books in all need to be unpacked?

(A) 1,052
(B) 1,125
(C) 1,132
(D) 1,152

33. Sofia can text 40 words in one minute. At that rate, how many words can she text in 12 minutes?

(A) 400
(B) 480
(C) 580
(D) 720

36. Yoshi says he needs a board that is $\frac{17}{4}$ feet long. How can Yoshi rename the fraction as a mixed number?

(A) $5\frac{1}{4}$
(B) $4\frac{1}{4}$
(C) $3\frac{1}{4}$
(D) $2\frac{1}{4}$

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37. Marsha named a fraction that was **not** a multiple of $\frac{3}{6}$. Which fraction could she have named?

(A) $\frac{6}{6}$
(B) $\frac{9}{6}$
(C) $\frac{11}{6}$
(D) $\frac{15}{6}$

38. Carlos lives $\frac{3}{8}$ mile from his school. He walks to school each morning and gets a ride home after school. How far does Carlos walk to school in 5 days?

(A) 1 mile
(B) $1\frac{3}{4}$ miles
(C) $1\frac{7}{8}$ miles
(D) $2\frac{7}{8}$ miles

39. Maya spent $1\frac{1}{6}$ hours a day working on her science project. It took her 4 days to complete the project. How much time in all did it take Maya to complete her science project?

(A) $4\frac{4}{6}$ hours
(B) $4\frac{1}{6}$ hours
(C) $3\frac{4}{6}$ hours
(D) $3\frac{1}{6}$ hours

40. On Friday, 148 fourth graders went on a field trip to a wildlife park. The staff divided them into 5 tour groups. Which is the **best** estimate of the number of students in each group?

(A) 50
(B) 40
(C) 30
(D) 20

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41. Steven needs 42 stickers to decorate a poster he is making. The stickers come on sheets of 12. What is the least number of sheets of stickers Steven should buy?

(A) 5
(B) 4
(C) 3
(D) 2

44. Jared drew the figure below.



How many lines of symmetry does the figure have?

(A) 4
(B) 3
(C) 2
(D) 1

42. A store gave away 1,498 calendars in 7 days. They gave away the same number of calendars each day. How many calendars did the store give away each day?

(A) 21
(B) 204
(C) 214
(D) 224

45. Bella drew the figure below as an example for her classmate.



Which of the following terms **best** describes the figure Bella drew?

(A) line segment
(B) line
(C) angle
(D) ray

43. A cookie factory packs 6 small cookies in a sample pack. The factory gives the sample packs to visitors. How many sample packs can they make with 1,800 cookies?

(A) 3,000
(B) 300
(C) 30
(D) 3

47. A sign is in the shape of an obtuse triangle. Which of the following could be the shape of the sign?



(A)



(B)



(C)



(D)

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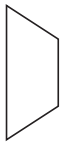
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46. The garden in Juan's backyard is in the shape of a trapezoid with only 1 pair of parallel sides. Which figure could be the shape of Juan's garden?



(A)



(B)



(C)



(D)

49. Justin needs $\frac{2}{3}$ quart of orange juice for the drink he is making. Which fraction is equivalent to $\frac{2}{3}$?

(A) $\frac{4}{9}$
(B) $\frac{1}{2}$
(C) $\frac{6}{9}$
(D) $\frac{4}{3}$

50. Jasmine cut $\frac{3}{8}$ yard of blue ribbon and $\frac{1}{3}$ yard of red ribbon to decorate a package. Which statement correctly compares the fractions?

(A) $\frac{1}{3} > \frac{3}{8}$
(B) $\frac{1}{3} = \frac{3}{8}$
(C) $\frac{3}{8} > \frac{1}{3}$
(D) $\frac{3}{8} < \frac{1}{3}$

48. Luisa ran $\frac{3}{5}$ mile yesterday and $\frac{1}{2}$ mile today. Which number is a common denominator for $\frac{3}{5}$ and $\frac{1}{2}$?

(A) 12
(B) 10
(C) 5
(D) 2

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1. Select a number for that will make a true comparison.
Mark all that apply.

$$807,058 > \text{ } \square$$

- (A) 870,508 (C) 807,508 ☒ 805,058
(B) 870,058 (D) 807,085 ☒ 800,758

2. Leslie wrote the greatest number that can be made using each of these digits exactly once.

6	2	4	7	9	1
---	---	---	---	---	---

Part A

What was Leslie's number? How do you know this is the greatest possible number for these digits?

976,421; possible answer: I used place value. I took the greatest digit and placed it in the spot furthest to the left, the hundred thousands column. I placed the next greatest digit in the ten thousands column and so on. I know that each place value is ten times as much as the place value to its right.

Part B

What is the least number that can be made using each digit exactly once? Explain why the value of the 4 is greater than the value of the 6.

124,679; possible explanation: the 4 represents 4,000 and the 6 represents 600.



Name _____

For 3–4, use the table.

Mountain Peaks of Canada			
Name	Height (ft)	Name	Height (ft)
Centennial Peak	12,533	Mount Root	12,799
Mount Columbia	12,293	Mount Tiedemann	12,625
Mount King George	12,274	North Twin	12,247

3. Write the name of each mountain in the box that describes its height, in feet.

Between 12,240 feet and 12,500 feet
Mount Columbia, Mount King George, North Twin

Between 12,501 feet and 12,800 feet
Centennial Peak, Mount Tiedemann, Mount Root

4. Circle the name of the tallest peak. Explain how you know which of the mountain peaks is the tallest.

Mount Root is the tallest; Possible explanation: I compared the heights by place value position.

5. The assistant principal bought 230 student planners for the school. If there are 10 planners in a box, how many boxes did he buy?

- (A) 2,300 (C) 230
(B) 240 ☒ 23

6. Luis and Liz each rounded 635,974 to the nearest ten thousand. Luis wrote 630,000 and Liz wrote 640,000. Who is correct? Explain the error that was made.

Liz is correct. Possible explanation: Luis left the ten thousands digit the same instead of increasing it by 1. The digit in the thousands place is 5, so to round to the nearest ten thousand, Luis should have increased the ten thousands digit, 3, by 1.



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7. The total season attendance for a professional football team's home games, rounded to the nearest ten thousand, was 710,000. For numbers 7a–7d, select Yes or No to tell whether the number could be the exact attendance.

7a. 706,791 ☒ Yes ☐ No

7b. 700,987 ☐ Yes ☒ No

7c. 701,752 ☐ Yes ☒ No

7d. 714,498 ☒ Yes ☐ No

For 8–10, use the table.

The table shows recent population data for Fresno, California.

Population of Fresno, CA			
Age in years	Population	Age in years	Population
Under 5	43,911	20 to 34	119,388
5 to 9	40,087	35 to 49	89,416
10 to 14	39,634	50 to 64	72,261
15 to 19	43,867	65 and over	46,101

8. How many children are under 10 years old? Show your work.

83,998 children; $43,911 + 40,087 = 83,998$;
Check students' work.

9. How many people are between the ages of 35 and 64? Show your work.

161,677 people; $89,416 + 72,261 = 161,677$;
Check students' work.

10. How many more children are under the age of 5 than between the ages of 10 and 14? Show your work.

4,277 children; $43,911 - 39,634 = 4,277$;
Check students' work.

Name _____

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11. For numbers 11a–11d, select True or False for each sentence.

11a. The value of 2 in 724,638 is 20,000. ☒ True ☐ False

11b. The value of 8 in 380,194 is 800,000. ☐ True ☒ False

11c. The value of 7 in 671,235 is 70,000. ☒ True ☐ False

11d. The value of 9 in 874,092 is 900. ☐ True ☒ False

12. Select another way to show 106,423. Mark all that apply.

☒ 100,000 + 6,000 + 400 + 20 + 3

☒ 1 hundred thousand + 6 thousands + 4 hundreds + 2 tens + 3 ones

☐ one hundred six thousand, twenty-three

☒ 100,000 + 16,000 + 400 + 20 + 3

☐ one hundred six thousand, four hundred three

☒ one hundred six thousand, four hundred twenty-three

13. Tanya, Will, and Juan are playing a game online. Juan scores 101,473 points. Tanya scores 9,879 fewer points than Juan and Will scores 9,853 more points than Tanya. What is Will's score? Show your work.

101,447; $101,473 - 9,879 = 91,594$;
91,594 + 9,853 = 101,447; Check students' work.

Name _____

Chapter 1 Test
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15 to 19	43,867	65 and over	46,101

8. How many children are under 10 years old? Show your work.

83,998 children; $43,911 + 40,087 = 83,998$;
Check students' work.

9. How many people are between the ages of 35 and 64? Show your work.

161,677 people; $89,416 + 72,261 = 161,677$;
Check students' work.

10. How many more children are under the age of 5 than between the ages of 10 and 14? Show your work.

4,277 children; $43,911 - 39,634 = 4,277$;
Check students' work.

Name _____

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Page 4

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11a. The value of 2 in 724,638 is 20,000. ☒ True ☐ False

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11c. The value of 7 in 671,235 is 70,000. ☒ True ☐ False

11d. The value of 9 in 874,092 is 900. ☐ True ☒ False

12. Select another way to show 106,423. Mark all that apply.

☒ 100,000 + 6,000 + 400 + 20 + 3

☒ 1 hundred thousand + 6 thousands + 4 hundreds + 2 tens + 3 ones

☐ one hundred six thousand, twenty-three

☒ 100,000 + 16,000 + 400 + 20 + 3

☐ one hundred six thousand, four hundred three

☒ one hundred six thousand, four hundred twenty-three

13. Tanya, Will, and Juan are playing a game online. Juan scores 101,473 points. Tanya scores 9,879 fewer points than Juan and Will scores 9,853 more points than Tanya. What is Will's score? Show your work.

101,447; $101,473 - 9,879 = 91,594$;
91,594 + 9,853 = 101,447; Check students' work.



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14. There were 12,351 visitors to a history center last year. What is this number rounded to the nearest hundred? Explain how you rounded.

12,400; possible explanation: there is a 3 in the hundreds place. The digit to its right is 5, so 12,351 is closer to 12,400 than 12,300.

15. Arizona has a land area of 113,998 square miles. Wyoming has a land area of 97,813 square miles. How much greater is the area, in square miles, of Arizona than the area of Wyoming? Show your work and explain how you know the answer is reasonable.

16,185 square miles; $113,998 - 97,813 = 16,185$; I estimated the difference as $110,000 - 98,000$, or 12,000. The answer is close to the estimate of 12,000, so it is reasonable. Check students' work.

16. Circle the choice that completes the statement.

10,000 less than 35,391 is

equal to
greater than
less than

 1,000

less than 25,391.

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17. Match the number to the value of its 5.

36,458

375,123

18,005

52,789

5

50

50,000

5,000

18. A total of 543,718 visitors went to a theme park during August and September. If 321,654 visitors went to the theme park in August, how many visitors went to the theme park in September? Show your work.

$222,064$ people; $543,718 - 321,654 = 222,064$; Check students' work.

19. An ice-skating competition lasted three days. Day one had an attendance of 16,390 people. Day two had an attendance of 16,550 people. Day three had an attendance of 16,237 people. Write the days in order from least attendance to greatest attendance. Use pictures, words, or numbers to show how you know.

day three, day one, day two; possible answer: $16,237 < 16,390 < 16,550$

20. Carson made a four-digit number with a 4 in the thousands place, a 4 in the ones place, a 5 in the tens place, and a 6 in the hundreds place. What was the number?

4,654

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STOP

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Chapter 1

An Amusement Park

Each year, the Park Director at an amusement park records the number of tickets sold for the five rides at her park.

Name of Ride	Tickets Sold
Wild Mouse	314,890
Tilt-a-Whirl	198,572
Big Roller Coaster	255,429
Water Slide	320,040
Spinning Tea Cups	189,403

1. Find the value of the ten thousands place for the Big Roller Coaster.

How is the value of the digit in the ten thousands place different from the value of the digit in the thousands place?

50,000 The digit in the ten thousands place is 10 times the value of the digit in the thousands place.

2. For which ride does the number of tickets sold have an 8 in the greatest place value? Explain how you know.

Spinning Tea cups because there the 8 is in the 10 thousands place.

3. Compare the number of tickets sold for the Wild Mouse and the Water Slide. Write a number sentence using $>$, $<$, or $=$. Explain your answer.

More tickets sold for the Water Slide.
 $320,040 > 314,890$ The two rides have the same digit in the hundred thousands place, but the Water Slide has the greater digit in the ten thousands place.

4. Choose one ride in the chart. Write the number of tickets sold in the box below. Then write the number in expanded form and with number names.

155,429

$200,000 + 50,000 + 5,000 + 400 + 20 + 9$
 two hundred fifty five thousand four hundred twenty nine

5. The Park Director also records the number of visitors each week. For each number of visitors, round to the place value of the underlined digit.

Week	Number of Visitors	Rounded Number
1	127,862	128,000
2	110,351	110,400
3	94,678	90,000

6. Use the numbers in the chart to solve the problems. Estimate. Show your work.

- a. About how many people visited the amusement park during Week 2 and Week 3?

Estimate: $200,000$
 $205,014$
 $\begin{array}{r} 110,351 \\ + 94,678 \\ \hline 205,029 \end{array}$

- b. About how many more people visited the amusement park during Week 1 than Week 3?

Estimate: $30,000$
 $33,184$
 $\begin{array}{r} 127,862 \\ - 94,678 \\ \hline 33,184 \end{array}$

Chapter 1

Name _____

An Amusement Park

Each year, the Park Director at an amusement park records the number of tickets sold for the five rides at her park.

Name of Ride	Tickets Sold
Wild Mouse	314,890
Tilt-a-Whirl	198,572
Big Roller Coaster	255,429
Water Slide	320,040
Spinning Tea Cups	189,403

1. Find the value of the ten thousands place for the Big Roller Coaster.

How is the value of the digit in the ten thousands place different from the value of the digit in the thousands place?

59,000. It's different because 50,000 is bigger than 5,000

2. For which ride does the number of tickets sold have an 8 in the greatest place value? Explain how you know.

I knew because I looked at all the digits and found which one is the highest. Spinning Tea cups

3. Compare the number of tickets sold for the Wild Mouse and the Water Slide. Write a number sentence using $>$, $<$, or $=$. Explain your answer.

The waterslide is greater than the Wild mouse
 $320,040 > 314,890$

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4. Choose one ride in the chart. Write the number of tickets sold in the box below. Then write the number in expanded form and with number names.

198,572

$100,000 + 90,000 + 8,000 + 500 + 70 + 2$
 one hundred thousand, ninety thousand, eight thousand, five hundred, seventy, two

5. The Park Director also records the number of visitors each week. For each number of visitors, round to the place value of the underlined digit.

Week	Number of Visitors	Rounded Number
1	127,862	130,862
2	110,351	110,051
3	94,678	104,678

6. Use the numbers in the chart to solve the problems. Estimate. Show your work.

- a. About how many people visited the amusement park during Week 2 and Week 3?

Estimate: $200,000$
 $110,051$
 $+ 104,678$
 $\hline 214,729$

- b. About how many more people visited the amusement park during Week 1 than Week 3?

Estimate: $30,000$

$130,862$
 $- 104,678$
 $\hline 26,184$

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An Amusement Park

Each year, the Park Director at an amusement park records the number of tickets sold for the five rides at her park.

Name of Ride	Tickets Sold
Wild Mouse	314,890
Tilt-a-Whirl	198,572
Big Roller Coaster	253,429
Water Slide	320,040
Spinning Tea Cups	189,403

1. Find the value of the ten thousands place for the Big Roller Coaster. How is the value of the digit in the ten thousands place different from the value of the digit in the thousands place?
- 50,000 It is 10 times
more than the thousands place.

2. For which ride does the number of tickets sold have an 8 in the greatest place value? Explain how you know.
- Spinning Tea Cups

3. Compare the number of tickets sold for the Wild Mouse and the Water Slide. Write a number sentence using $>$, $<$, or $=$. Explain your answer.
- $314,890 < 320,040$

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4. Choose one ride in the chart. Write the number of tickets sold in the box below. Then write the number in expanded form and with number names.

320,040

$300,000 + 20,000 + 40$
three hundred twenty thousand forty

5. The Park Director also records the number of visitors each week. For each number of visitors, round to the place value of the underlined digit.

Week	Number of Visitors	Rounded Number
1	127,862	<u>127,000</u>
2	110,351	<u>110,300</u>
3	94,678	<u>90,000</u>

6. Use the numbers in the chart to solve the problems. Estimate. Show your work.

- a. About how many people visited the amusement park during Week 2 and Week 3?
- Estimate: $200,000$ $110,300$
 $90,000$

- b. About how many more people visited the amusement park during Week 1 than Week 3?

Estimate: $237,000$ $127,000$
 $110,000$

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Chapter 1

An Amusement Park

Each year, the Park Director at an amusement park records the number of tickets sold for the five rides at her park.

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255,429

2. For which ride does the number of tickets sold have an 8 in the greatest place value? Explain how you know.

Wild Mouse Tilt a Whirl +
Spinning Tea Cups have 8.

3. Compare the number of tickets sold for the Wild Mouse and the Water Slide. Write a number sentence using $>$, $<$, or $=$. Explain your answer.

314,890
320,040
 $> < =$

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4. Choose one ride in the chart. Write the number of tickets sold in the box below. Then write the number in expanded form and with number names.

314,890

5. The Park Director also records the number of visitors each week. For each number of visitors, round to the place value of the underlined digit.

Week	Number of Visitors	Rounded Number
1	12 <u>7</u> ,862	
2	110, <u>3</u> 51	
3	<u>9</u> 4,678	

6. Use the numbers in the chart to solve the problems. Estimate. Show your work.

- a. About how many people visited the amusement park during Week 2 and Week 3?

Estimate: 104,929

$$\begin{array}{r} 110,351 \\ + 94,678 \\ \hline 104,929 \end{array}$$

- b. About how many more people visited the amusement park during Week 1 than Week 3?

Estimate: 33,216

$$\begin{array}{r} 127,862 \\ - 94,678 \\ \hline 33,216 \end{array}$$

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For 1–3, use the table.

Prices for Roses			
Rose	Regular Price	Price for 3 or more	Price for 3 or more
Amsterdam	\$17	\$14	Amber Star \$16 America \$13
Coretta Scott King	\$25	\$22	America \$19 Cinderella \$16
Eden	\$18	\$15	Cinderella \$15 \$12

1. What is the cost of 3 Amsterdam roses? Show your work.

$$\begin{array}{r} \$42; \$14 \\ \times 3 \\ \hline \$42 \end{array}$$

2. Mr. Rivera buys 5 Eden roses and 2 Coretta Scott King roses. What is the cost of the roses? Show your work and explain how you found the answer.

$$\begin{array}{r} \$125; \$15 \\ \times 5 \\ \hline \$75 \end{array}$$

Possible explanation: First, I found the discounted cost of the Eden roses and the regular cost of the Coretta Scott King roses. Then, I added the total cost of the Eden roses (\$75) and the total cost of the Coretta Scott King roses (\$50).

3. Shari will buy 3 Cinderella roses or 2 America roses. She wants to buy the roses that cost less. What roses will she buy? How much will she save? Show your work.

$$\begin{array}{r} \$12 \times 3 = \$36; \$38 - \$36 = \$2; \text{Check students' work.} \end{array}$$

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4. For numbers 4a–4d, select True or False for each equation.

4a. $6 \times 723 = 4,228$ ☐ True ☒ False

4b. $7 \times 3,249 = 22,743$ ☒ True ☐ False

4c. $4 \times 938 = 3,652$ ☐ True ☒ False

4d. $9 \times 2,641 = 23,769$ ☒ True ☐ False

5. Part A

Draw a line to match each section in the model to the partial product it represents.

4

100

70

3

4 × 3

4 × 100

4 × 70

Part B

Then find 4×173 . Show your work and explain.

$$\begin{array}{r} 173 \\ \times 4 \\ \hline 400 \\ 280 \\ + 12 \\ \hline 692 \end{array}$$

Check students' work.

Possible explanation: The model shows that I can write 173 as $100 + 70 + 3$. Then, I multiply each number by 4 to get the partial products 400, 280, and 12. The sum of the partial products, 692, is the answer.

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6. For numbers 6a–6c, write an equation or a comparison sentence using the numbers on the tiles.

6a.

36

9

9

9

9

3

4

7

8

9

6b.

21

3

3

3

3

3

3

9

21

36

72

6c. $9 \times 8 = 72$

7. Multiply 6×64 . For numbers 7a–7d, select True or False for each statement.

7a. A reasonable estimate of the product is 360. ☒ True

7b. Using partial products, the products are 240 and 36. ☐ True

7c. Using regrouping, 24 ones are regrouped as 4 tens 2 ones. ☐ True

7d. The product is 384. ☒ True

7a. A reasonable estimate of the product is 360. ☐ False

7b. Using partial products, the products are 240 and 36. ☒ False

7c. Using regrouping, 24 ones are regrouped as 4 tens 2 ones. ☐ False

7d. The product is 384. ☐ False

50,130 points;
8,355
 $\times 6$
50,130

Check students' work.

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9. Multiply 9×354 using place value and expanded form. Choose the number from the box to complete the expression.

300

30

3

5

50

500

400

40

4

10. For numbers 10a–10b, use place value to find the product.

10a. $8 \times 700 = 8 \times \boxed{7}$ hundreds
= 56 hundreds
= 5,600

10b. $4 \times 300 = 4 \times \boxed{3}$ hundreds
= 12 hundreds
= 1,200

11. Carrie manages a catering company. She rented 325 chairs each week for the first two weeks of May. Carrie rented 750 chairs each week for the first two weeks of April. The chair rental company forgot to send 23 chairs. How many chairs did Carrie receive in those 4 weeks? Show your work.

$325 \times 2 = 650$
 $750 \times 2 = 1,500$
 $650 + 1,500 = 2,150$
 $2,150 - 23 = 2,127$
Carrie received 2,127 chairs.

Name _____

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Name _____

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9. Multiply 9×354 using place value and expanded form. Choose the number from the box to complete the expression.

300

30

3

5

50

500

400

40

4

10. For numbers 10a–10b, use place value to find the product.

10a. $8 \times 700 = 8 \times \boxed{7}$ hundreds
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 $2,150 - 23 = 2,127$
Carrie received 2,127 chairs.

Name _____

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Page 4

Chapter 2

Name _____

Cars, Trains, Boats, and Planes

Every day people travel to and from a city using various forms of transportation. Use multiplication strategies to solve each problem.

1. To go to the beach, Adiyah drives 4 times as many miles as Jacob. Adiyah drives 20 miles. How many miles does Jacob drive? Write an equation and a comparison sentence to solve.

$$20 \div 4 = 5 \text{ miles}$$

$$5 > 4$$

2. Hannah travels 6 times as many minutes to work as Raoul does. Together, they travel for 63 minutes. How many minutes does Hannah travel? Draw a model and write an equation to solve.

Hannah $\boxed{10} \boxed{10} \boxed{10} \boxed{10} \boxed{10} \boxed{10}$ $7 \times T = 63$
 Raoul $\boxed{10}$ $63 \div 7 = 9$ $9 \times 6 = 54 \text{ miles}$

3. Ben travels by train 19 miles to work. If Ben travels 8 times a week, how many miles does he travel? Use a drawing and the Distributive Property to solve. Show your work.

$\begin{array}{|c|c|} \hline 10 & 9 \\ \hline \end{array}$

$$8 \times 10 = 80$$

$$8 \times 9 = 72$$

$$80 + 72 = 152 \text{ miles}$$

4. A ferryboat travels 178 miles in one week. How many miles does the boat travel in 4 weeks? Draw a diagram and use expanded form to solve. Show your work.

$\begin{array}{|c|c|} \hline 100 & 78 \\ \hline \end{array}$ $\begin{array}{|c|c|} \hline 280 & 32 \\ \hline \end{array}$ $\begin{array}{|c|c|} \hline 400 & 72 \\ \hline \end{array}$

$$400 + 280 = 680$$

$$680 + 72 = 752 \text{ miles}$$

5. The chart shows the distance from New York City to three cities.

Distance from New York City (miles)		
Boston, MA	Rochester, NY	Salt Lake City, UT
217	345	2,171

Estimate your answer. Then find the exact answer. Use rounding, regrouping, or place value. Describe the strategy you used.

- a. A plane travels from New York City to Boston once each day. How far does the plane travel in one week on this route?

Estimate $2,600$ mental math
 Exact answer $2,733$
 Strategy $I \text{ did it in my head}$
 regrouping

- b. Another plane makes 6 trips in one week. It travels from New York City to Rochester 3 times, and from New York City to Salt Lake City 3 times. How many miles does the plane travel each week?

Estimate $7,200$
 Exact answer $7,548$
 Strategy $I \text{ Added}$

$$\begin{array}{r} 2,171 \\ + 2,171 \\ + 2,171 \\ \hline 6,513 \end{array}$$

$$\begin{array}{r} 345 \\ + 345 \\ + 345 \\ \hline 1,035 \end{array}$$

$$\begin{array}{r} 6,513 \\ + 1,035 \\ \hline 7,548 \end{array}$$

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Chapter 2

Cars, Trains, Boats, and Planes

Every day people travel to and from a city using various forms of transportation. Use multiplication strategies to solve each problem.

1. To go to the beach, Adiyah drives 4 times as many miles as Jacob. Adiyah drives 20 miles. How many miles does Jacob drive? Write an equation and a comparison sentence to solve.

$$20 \times 4 = 80 \text{ miles}$$

2. Hannah travels 6 times as many minutes to work as Raoul does. Together, they travel for 63 minutes. How many minutes does Hannah travel? Draw a model and write an equation to solve.

$$\begin{array}{r} 63 \\ \times 6 \\ \hline 378 \end{array}$$

minutes

$$15 \times 8 = 120 \text{ miles}$$

3. Ben travels by train 19 miles to work. If Ben travels 8 times a week, how many miles does he travel? Use a drawing and the Distributive Property to solve. Show your work.

4. A ferryboat travels 178 miles in one week. How many miles does the boat travel in 4 weeks? Draw a diagram and use expanded form to solve. Show your work.

$$\begin{array}{r} 178 \\ \times 4 \\ \hline 712 \end{array}$$

5. The chart shows the distance from New York City to three cities.

Distance from New York City (miles)		
Boston, MA	Rochester, NY	Salt Lake City, UT
217	345	2,171

Estimate your answer. Then find the exact answer. Use rounding, regrouping, or place value. Describe the strategy you used.

- a. A plane travels from New York City to Boston once each day. How far does the plane travel in one week on this route?

Estimate 200
Exact answer 217
Strategy 1 round

- b. Another plane makes 6 trips in one week. It travels from New York City to Rochester 3 times, and from New York City to Salt Lake City 3 times. How many miles does the plane travel each week?

Estimate 12
Exact answer 12
Strategy 1 added

$$\begin{array}{r} 6 \\ \times 3 \\ \hline 18 \end{array}$$

Chapter 2

Name _____

Cars, Trains, Boats, and Planes

Every day people travel to and from a city using various forms of transportation. Use multiplication strategies to solve each problem.

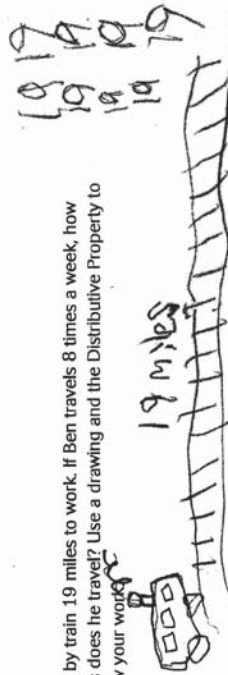
1. To go to the beach, Adiyah drives 4 times as many miles as Jacob. Adiyah drives 20 miles. How many miles does Jacob drive? Write an equation and a comparison sentence to solve.

$$20 > 4$$

2. Hannah travels 6 times as many minutes to work as Raoul does. Together, they travel for 63 minutes. How many minutes does Hannah travel? Draw a model and write an equation to solve.

$$63 > 6$$

3. Ben travels by train 19 miles to work. If Ben travels 8 times a week, how many miles does he travel? Use a drawing and the Distributive Property to solve. Show your work.



4. A ferryboat travels 178 miles in one week. How many miles does the boat travel in 4 weeks? Draw a diagram and use expanded form to solve. Show your work.



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5. The chart shows the distance from New York City to three cities.

Distance from New York City (miles)		
Boston, MA	Rochester, NY	Salt Lake City, UT
217	345	2,171

Estimate your answer. Then find the exact answer. Use rounding, regrouping, or place value. Describe the strategy you used.

- a. A plane travels from New York City to Boston once each day. How far does the plane travel in one week on this route?

Estimate _____
 Exact answer _____
 Strategy _____

$$217 \text{ miles}$$

- b. Another plane makes 6 trips in one week. It travels from New York City to Rochester 3 times, and from New York City to Salt Lake City 3 times. How many miles does the plane travel each week?

Estimate _____
 Exact answer _____
 Strategy _____

$$3 \times 345 + 3 \times 217 = 1035 + 651 = 1686$$

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1. Explain how to find 30×80 using mental math.

Possible explanation: think of 80 as 8 tens. 30×8 tens is 240 tens; 240 tens = 2,400

2. Mr. Burri's class is taking a field trip to the planetarium. The trip will cost \$27 for each student. There are 18 students in his class.

Part A

Round each factor to estimate the total cost of the field trip.

$20 \times 30 = 600$
The total cost would be about \$600.

Part B

Use compatible numbers to estimate the total cost of the field trip.

$20 \times 25 = 500$
The total cost would be about \$500.

Part C

Which do you think is the better estimate? Explain.

Answers will vary. Possible answer: I think the estimate using the compatible numbers is a better estimate. When rounded numbers are used to find an estimate, each factor becomes greater than the actual factors, so the product will be an overestimate. When compatible numbers are used, one estimated factor was \$2 less than the actual factor and the other estimated factor was 2 more than the actual factor, so the estimate should be close to the actual product.

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3. For numbers 3a–3e, select Yes or No to show if the answer is correct.

3a. $75 \times 10 = 750$	Yes	No
3b. $14 \times 20 = 280$	Yes	No
3c. $60 \times 30 = 180$	Yes	No
3d. $50 \times 50 = 2,500$	Yes	No
3e. $14 \times 30 = 700$	Yes	No

4. There are 28 boxes of pens in Mr. Gardner's supply cabinet. Each box contains 100 pens. How many pens are in the supply cabinet?

2,800 pens

5. Which would provide a reasonable estimate for each product? Write the estimate beside the product. An estimate may be used more than once.

50×20	25×40	30×30
26×37	25×40	28×31
51×21	50×20	41×24

6. There are 23 classes in the fourth grade. Each class has 21 students. Write a number sentence that will provide a reasonable estimate for the number of students in the fourth grade. Explain how you found your estimate.

Possible number sentence: $25 \times 20 = 500$; possible explanation: I used numbers that were close to the given numbers but easier to multiply.

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7. The model shows 41×32 . Write the partial products.

8. Albert made this model to find the product 28×43 . His model is incorrect.

Part A
What did Albert do wrong?

Albert added the numbers in the model instead of multiplying.

Part B
Redraw the model so that it is correct.

Part C
What is the product 28×43 ?

1,204

9. Tatum wants to use partial products to find 12×36 . Write the numbers in the boxes to show 12×36 .

Possible answer given.

$(10 \times 30) + (10 \times 6) + (2 \times 30) + (2 \times 6)$

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10. Which model can be used to find the product? Write the letter of the multiplication problem below the model.

(A) 17×35

(B) 26×14

(C) 13×33

(A) 17×35 (B) 26×14 (C) 13×33

C **A** **B**

11. Mr. Thomas places orders for pencils with the school emblem. The order includes 15 boxes of pencils and each box holds 25 pencils. How many pencils does Mr. Thomas order? Use partial products to help you find the answer.

$(25 \times 15) = (20 \times 10) + (20 \times 5) + (5 \times 10) + (5 \times 5) = 375$ pencils

12. Write the unknown digits. Use each digit exactly once.

$$\begin{array}{r} 51 \\ \times 28 \\ \hline 1,000 \\ 400 \\ 20 \\ + 8 \\ \hline 1,428 \end{array}$$

13. Alex has 21 marbles. Zach has 19 times as many marbles as Alex. How many marbles does Zach have?

399 marbles

14. Multiply.

$$51 \times 13 = 663$$

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15. A farmer planted 38 rows of green beans with 17 plants in each row. How many green bean plants did the farmer grow?

_____ **646** green bean plants

16. Select another way to show 23×29 . Mark all that apply.

☒ (23 $\times$ 20) + (23 $\times$ 9)

☒ (23 $\times$ 20) + (23 $\times$ 2) + (23 $\times$ 20) + (23 $\times$ 9)

☒ (20 $\times$ 29) + (3 $\times$ 20) + (3 $\times$ 9)

☒ (23 $\times$ 20) + (23 $\times$ 3)

☒ (20 $\times$ 20) + (20 $\times$ 9) + (3 $\times$ 20) + (3 $\times$ 9)

17. Val runs 13 laps. Each lap is 72 meters. How many meters does Val run? Show your work.

936 meters; 13 $\times$ 72 = 936; Check students' work.

18. The school principal orders 6 new chalkboards for each grade. There are 3 grades in the school. Each new chalkboard cost \$98. What is the total cost for the new chalkboards? Explain how you found your answer.

\$1,764; Possible explanation: I multiplied 6 and 3 to get 18. Then I multiplied 18 and 100 to get 1,800. Since 98 is 2 less than 100, I subtracted 2 $\times$ 18 from 1,800 to get 1,764.

19. Bill and Alyssa helped pack books to donate to a charity. Bill packed 28 boxes with 30 books in each box. Alyssa packed 31 boxes with 25 books in each box. How many more books did Bill pack? Show your work.

65 books; 28 $\times$ 30 = 840; 31 $\times$ 25 = 775; 840 - 775 = 65

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20. Steve and Bradley are finding the product of 25 and 21.

Part A

Steve's answer is incorrect. What did Steve do wrong?

Steve multiplied 25 by 20 correctly, but then multiplied 25 by 1 as 250.

Bradley

25

$\times 21$

400

10

20

25

25

$\times 21$

250

500

750

Part B

Bradley's answer is also incorrect. What did Bradley do wrong?

Bradley multiplied 5 by 20 and got 10 instead of 100.

Part C

What is the correct product?

525

21. A music store sells 22 blue MP3 players and 27 red MP3 players. Each MP3 player costs \$41.

Part A

What is a reasonable estimate for the total cost of the MP3 players? Show or explain how you found your answer.

**Possible estimate: \$2,000; 22 + 27 is about 50. \$41 is about \$40.
50 $\times$ \$40 = \$2,000**

Part B

What is the exact answer for the total cost of the MP3 players? Show or explain how you found your answer.

**\$2,009; 22 + 27 = 49
49 $\times$ \$41 = \$2,009**

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Chapter 3

Visiting New York City

A tour group visits New York City. Some of the sights they will visit are shown in the chart below. Use the chart to solve problems 1–3.

Sight	Cost
Bus Tour of Chinatown	\$18
Broadway Show	\$44
Observation Tower: Main Deck (adult)	\$25
Observation Tower: Main Deck (child)	\$19
Observation Tower: Top Deck (all visitors)	\$32

1. Twenty people on the tour go on the bus tour of Chinatown. How much does it cost in all? Use place value, the Distributive Property, or a number line to solve. Show your work.

$$\begin{aligned}
 10 \times 18 &= 360 \\
 (1+10) \times 18 &= 360 \\
 (18 \times 2) \times 10 &= 360 \\
 36 \times 10 &= 360
 \end{aligned}$$

2. There are 23 people that go to the Broadway Show. How much does it cost altogether? Draw a simple diagram to model and break apart factors to solve. Show your work.

20	800	40	4
3	120	80	12

$$\begin{aligned}
 20 \times 800 &= 16,000 \\
 3 \times 120 &= 360 \\
 16,000 + 360 &= 16,360
 \end{aligned}$$

3. There are 34 adults and 13 children on the tour. How much money will the group save by visiting the Main Deck of the Observation Tower instead of the Top Deck? Show your work. Explain your answer.

They would save \$407 by going on the main deck.

$$\begin{aligned}
 34 \times 25 &= 850 \\
 13 \times 19 &= 247 \\
 850 - 247 &= 603
 \end{aligned}$$

$$\begin{aligned}
 34 \times 32 &= 1088 \\
 13 \times 19 &= 247 \\
 1088 - 247 &= 841
 \end{aligned}$$

$$\begin{aligned}
 850 - 441 &= 409
 \end{aligned}$$

4. Postcards come in packages of 16. If 52 tourists each buy one package of post cards, how many postcards do they buy in all?

- a. Use partial products to solve. Show your work.

$$\begin{aligned}
 52 \times 16 &= 832 \\
 50 \times 16 &= 800 \\
 2 \times 16 &= 32 \\
 800 + 32 &= 832
 \end{aligned}$$

- b. Explain how you can use rounding or compatible numbers to see if your answer is reasonable.

I know $50 \times 10 = 1,000$ which is close to 832, so my answer is reasonable.

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Visiting New York City

A tour group visits New York City. Some of the sights they will visit are shown in the chart below. Use the chart to solve problems 1–3.

Sight	Cost
Bus Tour of Chinatown	\$18
Broadway Show	\$44
Observation Tower: Main Deck (adult)	\$25
Observation Tower: Main Deck (child)	\$19
Observation Tower: Top Deck (all visitors)	\$32

1. Twenty people on the tour go on the bus tour of Chinatown. How much does it cost in all? Use place value, the Distributive Property, or a number line to solve. Show your work.

Answer
\$300

$$\begin{array}{r} 20 \\ \times 18 \\ \hline + 160 \\ + 200 \\ \hline 300 \end{array}$$

2. There are 23 people that go to the Broadway Show. How much does it cost altogether? Draw a simple diagram to model and break apart factors to solve. Show your work.



3. There are 34 adults and 13 children on the tour. How much money will the group save by visiting the Main Deck of the Observation Tower instead of the Top Deck? Show your work. Explain your answer.

The group will save \$407. I multiplied the amt of adults with the cost and did the same for children. Then added the totals together. After that I added the adults and children. Then x's that by the money then subtracted the total 19 with the other total. 19 x 13 = 247. 247 + 247 = 494. 494 - 1097 = 407.

4. Postcards come in packages of 16. If 52 tourists each buy one package of post cards, how many postcards do they buy in all?

- a. Use partial products to solve. Show your work.

$$\begin{array}{r} 16 \\ \times 52 \\ \hline 320 \\ + 800 \\ \hline 832 \end{array}$$

832 postcards

- b. Explain how you can use rounding or compatible numbers to see if your answer is reasonable.

I would use rounding, 50 x 20 and got 1000.

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Chapter 3

Visiting New York City

A tour group visits New York City. Some of the sights they will visit are shown in the chart below. Use the chart to solve problems 1–3.

Sight	Cost
Bus Tour of Chinatown	\$18
Broadway Show	\$44
Observation Tower: Main Deck (adult)	\$25
Observation Tower: Main Deck (child)	\$19
Observation Tower: Top Deck (all visitors)	\$32

1. Twenty people on the tour go on the bus tour of Chinatown. How much does it cost in all? Use place value, the Distributive Property, or a number line to solve. Show your work.



$$\begin{array}{r} 20 \\ 18 \\ \hline 360 \end{array}$$

2. There are 23 people that go to the Broadway Show. How much does it cost altogether? Draw a simple diagram to model and break apart factors to solve. Show your work.

$$\begin{array}{r} 44 \\ 23 \\ \hline 40 \times 4 \\ 20 \times 3 \end{array}$$

3. There are 34 adults and 13 children on the tour. How much money will the group save by visiting the Main Deck of the Observation Tower instead of the Top Deck? Show your work. Explain your answer.

$$\$1057$$

$$\begin{array}{r} 34 \times 25 = \\ 13 \times 19 = \end{array}$$

$$\begin{array}{r} 34 \\ \times 25 \\ \hline 150 \\ 680 \\ \hline 830 \end{array}$$

$$\begin{array}{r} 13 \\ \times 19 \\ \hline 97 \\ 130 \\ \hline 227 \end{array}$$

$$\begin{array}{r} 830 \\ 227 \\ \hline \$1057 \end{array}$$

4. Postcards come in packages of 16. If 52 tourists each buy one package of post cards, how many postcards do they buy in all?

a. Use partial products to solve. Show your work.

$$\begin{array}{r} 52 \\ \times 16 \\ \hline 302 \\ 520 \\ \hline 832 \end{array}$$

- b. Explain how you can use rounding or compatible numbers to see if your answer is reasonable.

$$\begin{array}{r} 50 \\ \times 20 \\ \hline 1000 \end{array}$$

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Visiting New York City

A tour group visits New York City. Some of the sights they will visit are shown in the chart below. Use the chart to solve problems 1–3.

Sight	Cost
Bus Tour of Chinatown	\$18
Broadway Show	\$44
Observation Tower: Main Deck (adult)	\$25
Observation Tower: Main Deck (child)	\$19
Observation Tower: Top Deck (all visitors)	\$32

1. Twenty people on the tour go on the bus tour of Chinatown. How much does it cost in all? Use place value, the Distributive Property, or a number line to solve. Show your work.

$$\begin{array}{r} \$18 \\ 20 \\ \hline 360 \end{array}$$

2. There are 23 people that go to the Broadway Show. How much does it cost altogether? Draw a simple diagram to model and break apart factors to solve. Show your work.

$$\begin{array}{r} \$44 \\ 23 \\ \hline 67 \end{array}$$

3. There are 34 adults and 13 children on the tour. How much money will the group save by visiting the Main Deck of the Observation Tower instead of the Top Deck? Show your work. Explain your answer.

$$47$$

$$\begin{array}{r} 34 \\ 13 \\ \hline 47 \end{array}$$

4. Postcards come in packages of 16. If 52 tourists each buy one package of post cards, how many postcards do they buy in all?

- a. Use partial products to solve. Show your work.

$$\begin{array}{r} 52 \\ 16 \\ \hline 68 \end{array}$$

- b. Explain how you can use rounding or compatible numbers to see if your answer is reasonable.

Name _____

Chapter 4 Test
Page 1

1. Kelli and her family went to the beach for vacation. They drove 293 miles in 7 hours to get there. If they drove the same number of miles each hour, about how many miles did they drive each hour? Select the numbers the quotient is between.

☒ 40
☐ 50
☐ 60
☐ 70
☐ 80

2. Between which two numbers is the quotient of $88 \div 5$? Write the numbers in the boxes.

5
10
15
20
25

The quotient is between 15 and 20.

3. Look at the model. What division does it show?

$$\begin{array}{r} 20 \div 3 = 6 \text{ r } 2 \end{array}$$

4. For 4a-4d, choose Yes or No to tell whether the division sentence has a remainder.

4a. $32 \div 4$	☐ Yes ☒ No
4b. $41 \div 3$	☒ Yes ☐ No
4c. $65 \div 4$	☒ Yes ☐ No
4d. $36 \div 9$	☐ Yes ☒ No

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5. The harbormaster decides how many trips the ferry needs to make for 37 cars. The ferry can carry 8 cars at a time. What is the best way to interpret the remainder of $37 \div 8$ so that all cars can cross the harbor?

Increase the quotient by 1.

6. Kira makes 93 greeting cards for a craft fair. She sells the cards in packs of 5. How many full packs of greeting cards does Kira make?

18

7. A kennel is moving 160 dogs to a new facility. Each dog has its own crate. The facility manager rents 17 trucks. Each truck holds 9 dogs in their crates.

Part A

Write a division problem that can be used to find the number of trucks needed to carry the dogs in their crates. Then solve.

$160 \div 9 = 17 \text{ r } 7$

Part B

What does the remainder mean in the context of the problem?

A remainder of 7 means that 7 dogs and their crates do not fit in the 17 trucks.

Part C

How can you use your answer to determine if the facility manager rented enough trucks? Explain.

Having a remainder lets me know that not all of the dogs and their crates will fit in the 17 trucks. The facility manager did not rent enough trucks.

8. Solve.

$4,500 \div 9 =$ 500

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9. Which quotients are equal to 600? Mark all that apply.

☒ 1,200 ÷ 2 ☒ 2,400 ÷ 4 ☒ 420 ÷ 7
☒ 180 ÷ 3 ☒ 3,000 ÷ 5 ☒ 6,000 ÷ 3

10. Liz estimated $228 \div 7$ to be between 30 and 40. Which basic facts did she use to help her estimate? Mark all that apply.

☒ A 20 ÷ 5 ☒ 21 ÷ 7 ☒ 28 ÷ 7 ☒ D 30 ÷ 5

11. Amanda and her four sisters divided 1,021 stickers equally. About how many stickers did each girl receive?

Possible answer: about 200 stickers

12. For numbers 12a–12d, choose Yes or No to show how to use the Distributive Property to break apart the dividend to find the quotient $128 \div 4$.

12a. $(100 \div 4) + (28 \div 4)$ ☒ Yes ☐ No
 12b. $(103 \div 4) + (25 \div 4)$ ☒ Yes ☐ No
 12c. $(64 \div 4) + (64 \div 4)$ ☒ Yes ☐ No
 12d. $(12 \div 4) + (28 \div 4)$ ☐ Yes ☒ No

13. There are 48 people waiting for a fishing tour. Each boat holds 12 people. Rodney used the work below to find the number of boats needed. Explain how Rodney's work can be used to find the number of boats needed.

$$\begin{array}{r} 12 \overline{)48} \\ -12 \\ \hline 36 \\ -12 \\ \hline 24 \\ -12 \\ \hline 12 \\ -12 \\ \hline 0 \end{array}$$

Possible answer: I can count the number of times Rodney subtracted 12. Since he subtracted 12 four times, 4 boats are needed.

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14. A science show brings along everything it needs for a show in big trucks.

Part A

The science show sets up chairs in rows with 8 seats in each row. How many rows will need to be set up if 456 people are expected to attend the show?

57 rows

Part B

Can the rows be divided into a number of equal sections? Explain how you found your answer.

Yes; Possible explanation: I divided 456 by 8 to find there will need to be 57 rows. Since 57 can be divided by 3 with no remainder, the rows can be arranged into 3 equal sections.

Part C

The lizards in the show eat about 250 crickets per week. About how many crickets do the lizards eat each day? Explain.

Possible answer: about 40 crickets; I multiplied 7 by multiples of 10. $10 \times 7 = 70$, $20 \times 7 = 140$, $30 \times 7 = 210$, $40 \times 7 = 280$. 250 is closest to 280, so the best estimate is about 40 crickets per day.

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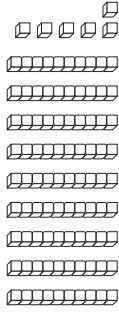
4-32

GO ON

Chapter 4 Test

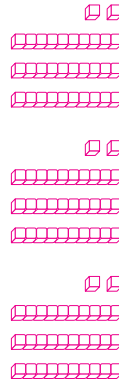
Name _____

19. Ethan needs to divide these base-ten blocks into 3 equal groups.



Draw or describe the model to show how many are in each group.

Possible description: the model will show 3 equal groups with 3 tens 2 ones in each group. OR



20. Jake wants to distribute 543 marbles equally among 7 of his friends. In which place is the first digit of the quotient? Choose the word that makes the sentence true.

The first digit of the quotient is in the _____ place.

ones	tens	hundreds	thousands
------	------	----------	-----------

21. Chad bought 8 dozen note pads for his office. The note pads were divided equally into 6 boxes. How many note pads are in each box?

16 _____ note pads

22. There are 126 seats in a meeting room. There are 9 seats in each row. There are 90 people seated, filling up full rows of seats. How many rows are empty?

4 _____ rows

Chapter 4 Test

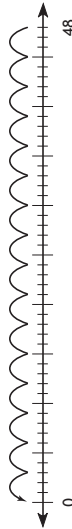
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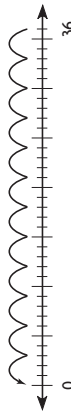
Name _____

16. Which model matches each expression? Write the letter in the box next to the model.

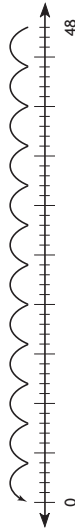
(A) $36 \div 3$ (B) $48 \div 3$ (C) $36 \div 2$ (D) $48 \div 4$



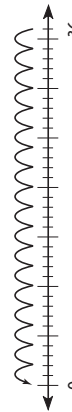
B



A



D



C

17. Diego bought 488 frozen yogurt bars in 4 different flavors for a party. He bought the same number of each flavor. How many of each flavor did he buy?

122 _____ bars of each flavor

18. Use partial quotients. Fill in the blanks.

$$\begin{array}{r} 7 \overline{)749} \\ - \underline{700} \\ 49 \\ - \underline{49} \\ 0 \end{array} \quad \begin{array}{r} 100 \times 7 \\ 7 \times 7 \end{array} \quad \begin{array}{r} 100 \\ 7 \\ 107 \end{array}$$

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Chapter 4

Helping Hands

Matt, Carlos, and Taron are helping make repairs to their school building during the summer. Their math teacher, Mr. Johnson, is in charge of the repairs and makes sure the boys get some extra math practice while they help out.

1. A delivery of lumber arrives at the school. Mr. Johnson asks Carlos to show the deliverymen to the classroom that has a number equal to the quotient of $5,286 \div 3$. How many digits will the classroom number have? Explain your mathematical reasoning.

4 because $5,286 \div 3 = 1,762$
digit number

$$\begin{array}{r} 1762 \\ 3 \overline{) 5286} \\ \underline{-3} \\ 22 \\ \underline{-21} \\ 18 \\ \underline{-18} \\ 06 \end{array}$$

2. Mr. Johnson and the boys are helping paint the school. Mr. Johnson asks Taron to follow these instructions.

Divide 2,430 by 9. Then divide that quotient by 6. Take two cans of paint to the classroom that has the same number as the final quotient.

Choose two different methods to find the answer. Explain your choices and then find the number of the classroom where Taron should take the cans of paint.

the number of the classroom
where he should take is 45

$$\begin{array}{r} 270 \\ 6 \overline{) 270} \\ \underline{-24} \\ 30 \\ \underline{-30} \\ 00 \end{array}$$

$$\begin{array}{r} 270 \\ 9 \overline{) 2430} \\ \underline{-18} \\ 630 \\ \underline{-630} \\ 00 \end{array}$$

$$\begin{array}{r} 270 \\ 6 \overline{) 270} \\ \underline{-240} \\ 30 \\ \underline{-30} \\ 00 \end{array}$$

$$\begin{array}{r} 270 \\ 9 \overline{) 2430} \\ \underline{-1800} \\ 630 \\ \underline{-630} \\ 00 \end{array}$$

$$\begin{array}{r} 270 \\ 6 \overline{) 270} \\ \underline{-240} \\ 30 \\ \underline{-30} \\ 00 \end{array}$$

$$\begin{array}{r} 270 \\ 9 \overline{) 2430} \\ \underline{-1800} \\ 630 \\ \underline{-630} \\ 00 \end{array}$$

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3. Mr. Johnson asked Carlos to take garbage bags to another room using these instructions.

Find how many 7s are in 1,762. The remainder is the number of garbage bags you will take. The quotient is the classroom number. How can Carlos use partial products to find the information he needs? Show and explain your mathematical thinking.

5 bags he will take
to room 251

$$\begin{array}{r} 251 \\ 7 \overline{) 1762} \\ \underline{-14} \\ 362 \\ \underline{-35} \\ 12 \\ \underline{-7} \\ 5 \end{array}$$

4. Matt had instructions to take a box of nails to a classroom that has a number equal to the remainder of the division $2,960 \div 9$. Matt took the nails to classroom 17. Without performing calculations, tell whether Matt was correct. Explain your mathematical thinking.

nine can go into 17 one
more time, matt was wrong.

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Chapter 4

Helping Hands

Matt, Carlos, and Tavon are helping make repairs to their school building during the summer. Their math teacher, Mr. Johnson, is in charge of the repairs and makes sure the boys get some extra math practice while they help out.

1. A delivery of lumber arrives at the school. Mr. Johnson asks Carlos to show the deliverymen to the classroom that has a number equal to the quotient of $5,286 \div 3$. How many digits will the classroom number have? Explain your mathematical reasoning.

It will have 4 digits.

2. Mr. Johnson and the boys are helping paint the school. Mr. Johnson asks Tavon to follow these instructions.

Divide 2,430 by 9. Then divide that quotient by 6. Take two cans of paint to the classroom that has the same number as the final quotient.

Choose two different methods to find the answer. Explain your choices and then find the number of the classroom where Tavon should take the cans of paint.

He will take 40 cans to room 40.

$$\begin{array}{r}
 6 \overline{) 2430} \\
 \underline{1800} \\
 630 \\
 \underline{540} \\
 90 \\
 \underline{90} \\
 000
 \end{array}$$

40 cans to room 40.

$$\begin{array}{r}
 2430 \\
 \underline{1800} \\
 630 \\
 \underline{540} \\
 90 \\
 \underline{90} \\
 000
 \end{array}$$

$$\begin{array}{r}
 3 \overline{) 5286} \\
 \underline{3000} \\
 2286 \\
 \underline{1500} \\
 786 \\
 \underline{600} \\
 186 \\
 \underline{150} \\
 36 \\
 \underline{30} \\
 6 \\
 \underline{6} \\
 0
 \end{array}$$

3. Mr. Johnson asked Carlos to take garbage bags to another floor using these instructions.

Find how many 7's are in 1,762. The remainder is the number of garbage bags you will take. The quotient is the classroom number. How can Carlos use partial products to find the information he needs? Show and explain your mathematical thinking.

There are 251 sevens in one thousand - 762.

$$\begin{array}{r}
 200 \\
 20 \\
 30 \\
 1 \\
 \hline
 251 \\
 251 \overline{) 1762} \\
 \underline{1400} \\
 362 \\
 \underline{280} \\
 82 \\
 \underline{77} \\
 5
 \end{array}$$

4. Matt had instructions to take a box of nails to a classroom that has a number equal to the remainder of the division $2,960 \div 9$. Matt took the nails to classroom 17. Without performing calculations, tell whether Matt was correct. Explain your mathematical thinking.

No, because the remainder has to be under nine.

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Helping Hands

Matt, Carlos, and Taven are helping make repairs to their school building during the summer. Their math teacher, Mr. Johnson, is in charge of the repairs and makes sure the boys get some extra math practice while they help out.

1. A delivery of lumber arrives at the school. Mr. Johnson asks Carlos to show the deliverymen to the classroom that has a number equal to the quotient of $5,286 \div 3$. How many digits will the classroom number have? Explain your mathematical reasoning.

$$\begin{array}{r} 2000 \\ 100 \\ 90 \\ 5 \\ \hline 5286 \\ 5200 \\ \hline 86 \\ 80 \\ \hline 6 \\ 5 \\ \hline 1 \end{array}$$

2. Mr. Johnson and the boys are helping paint the school. Mr. Johnson asks Tavon to follow these instructions.

Divide 2,430 by 9. Then divide that quotient by 6. Take two cans of paint to the classroom that has the same number as the final quotient.

Choose two different methods to find the answer. Explain your choices and then find the number of the classroom where Tavon should take the cans of paint.

$9 \times 2 = 18$
 $9 \times 4 = 36$
 $9 \times 3 = 27$
 $9 \times 0 = 0$

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3. Mr. Johnson asked Carlos to take garbage bags to another floor using these instructions.

Find how many 7s are in 1,762. The remainder is the number of garbage bags you will take. The quotient is the classroom number.

How can Carlos use partial products to find the information he needs? Show and explain your mathematical thinking.

$$7 \div 1,762$$

4. Matt had instructions to take a box of nails to a classroom that has a number equal to the remainder of the division $2,960 \div 9$. Matt took the nails to classroom 17. Without performing calculations, tell whether Matt was correct. Explain your mathematical thinking.

right

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1. List all of the factors of the number.
21: **1, 3, 7, 21**

2. Select the numbers that have a factor of 6. Mark all that apply.

☒ 12 ☒ 6
☒ 3 ☒ 48
☒ 42 ☒ 31

3. Marissa was decorating her room. She arranged 63 picture tiles on a wall in the shape of a rectangle. For 3a-3e, choose Yes or No to tell whether a possible arrangement of the picture tiles is shown.

3a. 7 rows of 9 tiles ☒ Yes ☐ No
3b. 22 rows of 6 tiles ☐ Yes ☒ No
3c. 21 rows of 3 tiles ☒ Yes ☐ No
3d. 63 rows of 1 tile ☒ Yes ☐ No
3e. 32 rows of 2 tiles ☐ Yes ☒ No

4. List all the factor pairs in the table.

Factors of 54	
$1 \times 54 = 54$	1, 54
$2 \times 27 = 54$	2, 27
$3 \times 18 = 54$	3, 18
$6 \times 9 = 54$	6, 9

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5. Classify the numbers. Some numbers may belong in more than one box.

45	48	81	84	99
----	----	----	----	----

Divisible by 3 and 9	Divisible by 5 and 9	Divisible by 2 and 6
45, 81, 99	45	48, 84

6. Josh works in a balloon store. He will put 45 balloons into bunches. He must use the same number of balloons in each bunch. The number of balloons in each bunch must be greater than 1 and less than 10. How many balloons could be in each bunch?

3, 5, or 9 balloons

7. Miles has a train collection with 36 engines, 72 boxcars, and 18 cabooses. He wants to arrange the train cars in equal rows with only one type of train car in each row. How many can he put in each row? Mark all that apply.

☒ 12 ☒ 6 ☒ 4 ☒ 3 ☒ 2 ☒ 1

8. The library is designing a book display with 20 fiction books, 28 biographies, and 40 non-fiction books. Each shelf will have only one type of book on it. Sheena says she can put 5 books on each shelf. She listed the common factors of 20, 28, and 40 below to support her reasoning.

20: 1, 2, 3, 4, 5, 7, 20
28: 1, 2, 4, 5, 14, 28
40: 1, 2, 4, 5, 8, 10, 20, 40

Is she correct? Explain your answer. If her reasoning is incorrect, explain how she should have found the answer.

No; Possible explanation: Her list of factors for 20 and 28 are not correct. 3 and 7 are not factors of 20, but 10 is. 5 is not a factor of 28, but 7 is. Since the common factors of 20, 28, and 40 are 1, 2, and 4, she can only put 1, 2, or 4 books on each shelf.

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9. The number of books featured at the local library is shown in the table.

Books	
Type of Book	Number of Books
mystery	32
novel	16
non-fiction	12

Part A

The local library is hosting a book fair in August that features the mystery books. All authors discuss the same number of mystery books and each will discuss more than 1 mystery book. How many authors could be featured in the show?

Part B

The library wants to display all the books on shelves in rows. Each row has the same number of books and the same type of books. How many books could be in each row? Explain how you found your answer.

1, 2, or 4 books in each row; possible explanation: I listed the factors of 32, 16, and 12 and then I identified the common factors of 32, 16, and 12. The only common factors are 1, 2, and 4.

10. Beverly was skip counting while jumping rope. She started to count by 9s. She said 9, 18, 27, 36, 45, and 54. What number will she say next?

63

11. Jose wrote the number 36. If his rule is *add 6*, what is the fourth number in Jose's pattern? How can you check your answer?

54; Possible answer: Start with 54 and subtract 6 three times to get 36; 54, 48, 42, 36.

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12. For numbers 12a–12e, select True or False for each statement.

12a. The number 45 is a multiple of 9. ☒ True ☐ False

12b. The number 6 is a multiple of 12. ☐ True ☒ False

12c. The number 56 is a multiple of 8. ☒ True ☐ False

12d. The number 4 is a factor of 8. ☒ True ☐ False

12e. The number 36 is a factor of 9. ☐ True ☒ False

13. What multiple of 9 is also a factor of 9?

9

14. Marta uses 1 piece of paper and 1 piece of ribbon to make kites. The paper comes in packs of 3 pieces and the ribbon comes in packs of 4 pieces. What is the least number of kites Marta can make without any supplies left over?

12 kites

15. A store in Roger's neighborhood sells boxes of pencils that have 6 pencils in each box. Roger bought several boxes of pencils at the store. Which could be the number of pencils he bought? Mark all that apply.

☒ A 9 ☒ B 18 ☐ C 20 ☒ D 24 ☐ E 34 ☒ F 42

16. Choose the words that make the sentence true.

The number 12 is

prime
composite

 because it has

exactly
more than

 two factors.

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17. Gus wrote the following riddle: I am a number between 30 and 60. My ones digit is three less than my tens digit. I am a prime number.

Part A

What number does Gus' riddle describe? Explain.

41; Possible explanation: The digit in the tens place must be 3, 4, or 5. So, the number must be 30, 41, or 52. Since 30 and 52 are even, they are divisible by 2. So, 30 and 52 are not prime. Since the only factors of 41 are 1 and 41, it is prime.

Part B

Gus' friend Russ guessed that his riddle was about the number 47. Why can't 47 be the answer to Gus' riddle? Explain.

Possible explanation: Although 47 is prime and between 30 and 60, the ones digit is three more than the tens digit. The ones digit should be three less than the tens digit.

18. Classify the numbers as prime or composite.

31	42	89	93
Prime		Composite	
31, 89		42, 93	

19. Aidan makes 12 bracelets on Monday. He makes 8 more bracelets each day from Tuesday through Thursday. How many bracelets does Aidan have in all by the end of the day on Thursday?

36 _____ bracelets

20. Use the rule to write the first five terms of the pattern.

Rule: Add 8, subtract 4

13, 21, 17, 25, 21



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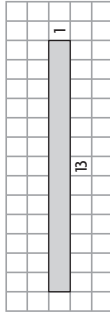
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21. Eric had 13 tiles to arrange in a rectangular design for the top of a box. He drew a model of the rectangles he could make with the 13 tiles.



Part A

How does Eric's drawing show that 13 is a prime number?

Possible explanation: Since there is only one possible rectangle that can be drawn with 13 tiles this means the only factors of 13 are 1 and itself. This makes 13 a prime number.

Part B

Suppose Eric used 12 tiles to make the rectangular design. How many different rectangles could he make with the 12 tiles? Write a list or draw a picture to show the number and dimensions of the rectangles he could make.

3; 1 tile by 12 tiles, 2 tiles by 6 tiles, and 3 tiles by 4 tiles

Part C

Eric's friend Dawn said that she could make a larger number of different designs with 15 tiles than with Eric's 13 tiles. Do you agree with Dawn? Explain.

Yes; Possible explanation: The number 15 is composite, so there is more than one factor pair. This means that more rectangles can be made.



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Taking the Subway

1. A subway train arrives at the station every 8 minutes. You have a doctor's appointment near the station, so you take the subway and arrive at 10:04. You are finished with your appointment at 11:15. When will the next subway train arrive at the station?

The next subway train will arrive in the next minute. This answer was found by adding 8 more minutes to each minute until you got over 11:15. After adding 8 minutes until you got over 11:15 you came up with 11:16. It will now be a minute before the next train arrives.

2. Anya's grandfather gives her a collection of souvenir subway tokens. He gives her 9 tokens from the 1960s, 12 tokens from the 1970s, and 21 tokens from the 1980s. She wants to make a display of each type of token. She wants all three displays to have rows with the same number of tokens in them.

- a. How can she display the tokens? Show your work.

$$\begin{array}{r} 9: 139 \\ 12: 1, 2, 3, 4, 6, 12 \\ 21: 1, 3, 7, 21 \end{array}$$

$$\begin{array}{r} 10:52 \\ + \\ 11:00 \\ + \\ 11:08 \\ \hline 11:16 \end{array}$$

Anya can display the tokens in rows of 3.

- b. Are the number of tokens in each of Anya's collections prime or composite numbers? Explain your reasoning.

They are composite numbers because they can be divided by numbers other than 1 and themselves.

3. Nicholas challenges Rajiv with these instructions for finding his house after basketball practice.

Get on the subway at 14th Street. The subway stops at 23rd, 28th, 33rd, 42nd, 51st, 59th, 68th, 77th, 86th, and 96th Streets. Get off at the first street you come to that is divisible by both 3 and 7.

How can Rajiv solve this problem? At which stop should he get off the subway?

A number that is divisible by both 3 and 7 is on the list. First Rajiv needs to find that number. He should look at the list and find out which number. That number is 42nd. Therefore Rajiv should get off at 42nd street.

4. A subway inspector has a list of stations he is supposed to inspect that day. The list is shown below.

Thursday Assigned Inspections: B Line						
Station	Station	Station	Station	Station	Station	Station
3	8	6	11	9	14	12

The inspector has torn off the bottom of his schedule by mistake. How can he find out if he is supposed to inspect Station 33 today?

The subway inspector will have to find a pattern in his schedule and see if 33 is in his schedule to see if he needs to inspect station 33. The pattern he would find would be add 5 subtract 2. So he would have to keep on doing this pattern until he gets to 33 or over. The inspector would be able to get to 33 by using the pattern so he does need to inspect 33. example: 12, 17, 15, 20, 18, 23, 21, 26, 24, 29, 27, 32, 30, 35, 33.

Name _____

Chapter 5

Taking the Subway

1. A subway train arrives at the station every 8 minutes. You have a doctor's appointment near the station, so you take the subway and arrive at 10:04. You are finished with your appointment at 11:15. When will the next subway train arrive at the station?

I took 10:04 and added 8 until I got to 11:16 the close number I could get to and then how el got my answer.

2. Anya's grandfather gives her a collection of souvenir subway tokens. He gives her 9 tokens from the 1960s, 12 tokens from the 1970s, and 21 tokens from the 1980s. She wants to make a display of each type of token. She wants all three displays to have rows with the same number of tokens in them.

- a. How can she display the tokens? Show your work.

$$\begin{array}{r} 9 \ 12 \ 21 \\ -1 \ 1 \ 1 \\ \hline 8 \ 11 \ 20 \end{array}$$

rows of 3

- b. Are the number of tokens in each of Anya's collections prime or composite numbers? Explain your reasoning.

composite

show your work

$$\begin{array}{r} 10:04 \\ +38 \\ \hline 10:42 \end{array}$$

$$\begin{array}{r} 10:42 \\ +38 \\ \hline 11:20 \end{array}$$

$$\begin{array}{r} 11:20 \\ +38 \\ \hline 11:58 \end{array}$$

$$\begin{array}{r} 11:58 \\ +38 \\ \hline 12:36 \end{array}$$

$$\begin{array}{r} 12:36 \\ +38 \\ \hline 13:14 \end{array}$$

$$\begin{array}{r} 13:14 \\ +38 \\ \hline 13:52 \end{array}$$

$$\begin{array}{r} 13:52 \\ +38 \\ \hline 14:30 \end{array}$$

$$\begin{array}{r} 14:30 \\ +38 \\ \hline 15:08 \end{array}$$

$$\begin{array}{r} 15:08 \\ +38 \\ \hline 15:46 \end{array}$$

$$\begin{array}{r} 15:46 \\ +38 \\ \hline 16:24 \end{array}$$

$$\begin{array}{r} 16:24 \\ +38 \\ \hline 17:02 \end{array}$$

$$\begin{array}{r} 17:02 \\ +38 \\ \hline 17:40 \end{array}$$

$$\begin{array}{r} 17:40 \\ +38 \\ \hline 18:18 \end{array}$$

$$\begin{array}{r} 18:18 \\ +38 \\ \hline 19:06 \end{array}$$

$$\begin{array}{r} 19:06 \\ +38 \\ \hline 19:44 \end{array}$$

$$\begin{array}{r} 19:44 \\ +38 \\ \hline 20:22 \end{array}$$

$$\begin{array}{r} 20:22 \\ +38 \\ \hline 21:00 \end{array}$$

$$\begin{array}{r} 21:00 \\ +38 \\ \hline 21:38 \end{array}$$

$$\begin{array}{r} 21:38 \\ +38 \\ \hline 22:16 \end{array}$$

$$\begin{array}{r} 22:16 \\ +38 \\ \hline 22:54 \end{array}$$

$$\begin{array}{r} 22:54 \\ +38 \\ \hline 23:32 \end{array}$$

$$\begin{array}{r} 23:32 \\ +38 \\ \hline 24:10 \end{array}$$

$$\begin{array}{r} 24:10 \\ +38 \\ \hline 24:48 \end{array}$$

3. Nicholas challenges Rajiv with these instructions for finding his house after basketball practice.

Get on the subway at 14th Street. The subway stops at 23rd, 28th, 33rd, 42nd, 51st, 59th, 68th, 77th, 86th, and 96th Streets. Get off at the first street you come to that is divisible by both 3 and 7.

How can Rajiv solve this problem? At which stop should he get off the subway?

He can look at all the multiples of 3 and 7. Rajiv should get off at 42nd street.

4. A subway inspector has a list of stations he is supposed to inspect that day. The list is shown below.

Thursday Assigned Inspections: B Line									
Station	Station	Station	Station	Station	Station	Station	Station	Station	Station
3	8	6	11	9	14	12			

The inspector has torn off the bottom of his schedule by mistake. How can he find out if he is supposed to inspect Station 33 today?

He can figure out the pattern and use that to help him. He can use that pattern to find out if he is doing station 33, which is missing.

$$\begin{array}{r} 12 \div 3 = 4 \\ 14 \div 3 = 4 \text{ R } 2 \\ 11 \div 3 = 3 \text{ R } 2 \\ 9 \div 3 = 3 \\ 6 \div 3 = 2 \\ 8 \div 3 = 2 \text{ R } 2 \\ 3 \div 3 = 1 \end{array}$$

Name _____

Chapter 5

Taking the Subway

1. A subway train arrives at the station every 8 minutes. You have a doctor's appointment near the station, so you take the subway and arrive at 10:04. You are finished with your appointment at 11:15. When will the next subway train arrive at the station?

Show your work

The next train will arrive at about 11:17 because there is 72 minutes between 10:04 and 11:15 so when you subtract 11:15 and 10:04 you will get 72 minutes

2. Anya's grandfather gives her a collection of souvenir subway tokens. He gives her 9 tokens from the 1960s, 12 tokens from the 1970s, and 21 tokens from the 1980s. She wants to make a display of each type of token. She wants all three displays to have rows with the same number of tokens in them.

- a. How can she display the tokens? Show your work.

00000000
0000000000
000000000000000000

- b. Are the number of tokens in each of Anya's collections prime or composite numbers? Explain your reasoning.

prime

3. Nicholas challenges Rajiv with these instructions for finding his house after basketball practice.

Get on the subway at 14th Street. The subway stops at 23rd, 28th, 33rd, 42nd, 51st, 59th, 68th, 77th, 86th, and 96th Streets. Get off at the first street you come to that is divisible by both 3 and 7.

How can Rajiv solve this problem? At which stop should he get off the subway?

First he should find the one station that is divisible by 3 and 7. I got 77 because 77 is divisible with 3.

$$\begin{array}{r} 3 \overline{) 77} \\ \underline{60} \\ 17 \\ \underline{15} \\ 2 \end{array}$$

$$\begin{array}{r} 13 \overline{) 96} \\ \underline{39} \\ 30 \\ \underline{26} \\ 4 \end{array}$$

4. A subway inspector has a list of stations he is supposed to inspect that day. The list is shown below.

Thursday Assigned Inspections: B Line									
Station	Station	Station	Station	Station	Station	Station	Station	Station	Station
3	8	6	11	9	14	12			

The inspector has torn off the bottom of his schedule by mistake. How can he find out if he is supposed to inspect Station 33 today?

He could find the Pattern like I did which is 45-2. I got No because I did the Pattern. The closest I got was 32.

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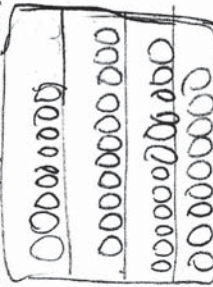
Taking the Subway

1. A subway train arrives at the station every 8 minutes. You have a doctor's appointment near the station, so you take the subway and arrive at 10:04. You are finished with your appointment at 11:15. When will the next subway train arrive at the station?

I think I may be. I will take the first one cause it will take so long

2. Anya's grandfather gives her a collection of souvenir subway tokens. He gives her 9 tokens from the 1960s, 12 tokens from the 1970s, and 21 tokens from the 1980s. She wants to make a display of each type of token. She wants all three displays to have rows with the same number of tokens in them.

- a. How can she display the tokens? Show your work.



- b. Are the number of tokens in each of Anya's collections prime or composite numbers? Explain your reasoning.

9, 12, 21

3. Nicholas challenges Rajiv with these instructions for finding his house after basketball practice.

Get on the subway at 14th Street. The subway stops at 23rd, 28th, 33rd, 42nd, 51st, 59th, 68th, 77th, 86th, and 96th Streets. Get off at the first street you come to that is divisible by both 3 and 7.

How can Rajiv solve this problem? At which stop should he get off the subway? 59th Street

I put 6 and add 3 every time until I got 21, then I do 7 and add 7 to it every time and got 49, so then I counted back and got 59th street.

4. A subway inspector has a list of stations he is supposed to inspect that day. The list is shown below.

Thursday Assigned Inspections: B Line					
Station 3	Station 8	Station 6	Station 11	Station 9	Station 14
					Station 12

The inspector has torn off the bottom of his schedule by mistake.

How can he find out if he is supposed to inspect Station 33 today?

He can't. If you do a number pattern you can set 3 on top, 5 on bottom, you are supposed to have 11, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919, 920, 921, 922, 923, 924, 925, 926, 927, 928, 929, 930, 931, 932, 933, 934, 935, 936, 937, 938, 939, 940, 941, 942, 943, 944, 945, 946, 947, 948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960, 961, 962, 963, 964, 965, 966, 967, 968, 969, 970, 971, 972, 973, 974, 975, 976, 977, 978, 979, 980, 981, 982, 983, 984, 985, 986, 987, 988, 989, 990, 991, 992, 993, 994, 995, 996, 997, 998, 999, 1000.

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Place Value and Operations with Whole Numbers

CRITICAL AREA

Building a House

Ben the Builder is building a house for the Johnson family. He needs to use his math skills to build the house correctly.

- Ben added to find how many drywall screws he needs to complete the house. Then he subtracted the number of screws he has to find how many screws he needs to buy. He used his calculator to help him, but then he dropped it. Now the screen looks like this.

$$\begin{array}{r} 111 \\ 438\boxed{6} \\ +2\boxed{7}79 \\ \hline 6\boxed{7}1\boxed{6}5 \\ -3721 \\ \hline 3\boxed{4}44 \end{array}$$

What are the missing numbers? How many screws does Ben need to buy? Explain your reasoning.

6, 7, 7, 6 and 4

Ben needs to buy 3,444 screws.

I figured out how much I needed to add to 9 to get 15. I put the 6 in the top box and the 1 above the 8 and continued adding. Then I used the numbers I found to subtract 3721.

- Ben will hire a crane to help the workers put the bundles of shingles on the roof. There is a limit to the weight the crane can lift at one time, but Ben wants the work done as quickly as possible. Explain to Ben what math he can use so that the crane uses the fewest lifts possible.

Ben can divide the total weight load of the crane by the weight of each bundle to find out how many bundles can go in each lift. Put on as much as he can.

- Ben needs to choose between three brands of shingles to use on the roof. He knows he needs 89 bundles of shingles but each type of shingle weighs a different amount. He needs to take the information he has about the cost of the crane and the amount it can lift to determine the cost of using each brand.

The crane costs \$350 plus an additional \$150 for each hour or part of an hour the crane is used. The crane can make 4 lifts in one hour. Each lift must weigh 650 pounds or less. The weights of a bundle of each brand of shingle can be found in the table below.

Complete the table. Show your work. Then decide which brand of shingles Ben should choose. Explain your reasoning.

Shingle	Weight of each Bundle (lb)	Number of Bundles in One Lift	Number of Lifts Needed	Number of Hours Needed	Total Cost of the Crane
Brand A	75	8	12 ÷ 4	3	\$800
Brand B	80	8	12	3	\$800
Brand C	85	7	13	4	\$950

Ben will choose Brand A or B because they cost less than C.

$$\begin{array}{r} 375 \\ \times 6 \\ \hline 450 \end{array}$$

$$\begin{array}{r} 80 \\ \times 6 \\ \hline 480 \end{array}$$

$$\begin{array}{r} 75 \\ \times 11 \\ \hline 825 \\ + 825 \\ \hline 1650 \end{array}$$

$$\begin{array}{r} 88 \\ + 1 \text{ more lift} \\ \hline 89 \end{array}$$

$$\begin{array}{r} 350 \\ + 150 \\ \hline 500 \end{array}$$

$$\begin{array}{r} 500 \\ + 150 \\ \hline 650 \end{array}$$

$$\begin{array}{r} 800 \\ + 150 \\ \hline 950 \end{array}$$

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4. This is the floor plan of the house Ben is building.

4. This is the floor plan of the house Ben is building.


$$A =$$

I picked numbers easy
to multiply (no fractions).

25	x	5	=	375
----	---	---	---	-----

$$20 \times 8 = 160$$

$$\begin{array}{r} 100 \\ 100 \overline{) 10000} \\ \underline{10000} \\ 0 \end{array}$$

4

558

8-10

1/2

125150

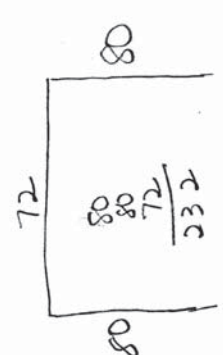
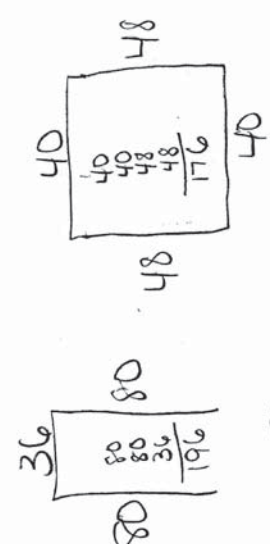
50

11

9
+
6

100

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$$\begin{array}{r} 54 \\ 176 \\ \times 7 \\ \hline 1232 \end{array}$$


$$\begin{array}{r} 196 \\ \times 2 \\ \hline 392 \end{array}$$

Name _____

Place Value and
Operations with Whole
Numbers

**CRITICAL
AREA**

Building a House

Ben the Builder is building a house for the Johnson family. He needs to use his math skills to build the house correctly.

1. Ben added to find how many drywall screws he needs to complete the house. Then he subtracted the number of screws he has to find how many screws he needs to buy. He used his calculator to help him, but then he dropped it. Now the screen looks like this.

$$\begin{array}{r} 438\boxed{6} \\ +2\boxed{7}79 \\ \hline 6\boxed{6}1\boxed{6}5 \\ -3721 \\ \hline 3\boxed{2}44 \end{array}$$

What are the missing numbers? How many screws does Ben need to buy? Explain your reasoning.

THE MISSING NUMBERS ARE 6, 7, 7, 6,
AND 4. BEN NEEDS 3,444 SCREWS.
6 BECAUSE $6+9$ IS 15 THE 8+7
IS 15 BUT THEN ADD 1 TO GET 16.
7 BECAUSE $7+3=10$ THEN +1 THEN
THE OTHER 7 BECAUSE $4+2=6+1$.
THEN SUBTRACT
4 FOR THE OTHER NUMBER.

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2. Ben will hire a crane to help the workers put the bundles of shingles on the roof. There is a limit to the weight the crane can lift at one time, but Ben wants the work done as quickly as possible. Explain to Ben what math he can use so that the crane uses the fewest lifts possible.

BEN CAN ADD THE TOTAL AMOUNT
OF WEIGHT TO EACH LIFT FROM
THE CRANE TO GET IT DONE.

3. Ben needs to choose between three brands of shingles to use on the roof. He knows he needs 89 bundles of shingles but each type of shingle weighs a different amount. He needs to take the information he has about the cost of the crane and the amount it can lift to determine the cost of using each brand.

The crane costs \$350 plus an additional \$150 for each hour or part of an hour the crane is used. The crane can make 4 lifts in one hour. Each lift must weigh 650 pounds or less. The weights of a bundle of each brand of shingle can be found in the table below.

Complete the table. Show your work. Then decide which brand of shingles Ben should choose. Explain your reasoning.

Shingle	Weight of each Bundle (lb)	Number of Bundles in One Lift	Number of Lifts Needed	Number of Hours Needed	Total Cost of the Crane
Brand A	75	8	112	3	800
Brand B	80	8	112	3	800
Brand C	85	7	13	4	950

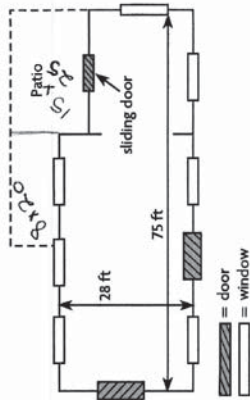
ANSWER
BEN SHOULD
USE A BECAUSE
IT COSTS THE
LEAST OUT OF
THE 3 BRANDS

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$$\begin{array}{r} 112 \times 7 = 784 \\ 112 \times 8 = 896 \\ 112 \times 8 = 896 \\ \hline 350 + 800 = 1150 \\ 350 + 800 = 1150 \\ 350 + 950 = 1300 \end{array}$$

Name _____

4. This is the floor plan of the house Ben is building.



$$8 \times 20 = 160$$

$$15 \times 25 = 375$$

$$\underline{535}$$

What is the estimated area of the patio? Explain your reasoning.

$A = 535 \text{ ft}^2$. The area is 535 ft^2 because the one side is 8 and the other is 20 and multiplied it's 160. Then it's 15×25 which is 375. $160 + 375 = 535 \text{ ft}^2$.

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5. Ben needs to buy trim for around the windows and doors of the house. Complete the table to determine how much trim he should buy. Show your work.

Remember: Windows are trimmed on all four sides. Doors are not trimmed along the bottom.

Item	Number	Height (in.)	Width (in.)	Trim Needed (in.)
Window	7	48	40	1232
Door	2	80	36	392
Sliding door	1	80	72	232
Total				1856

$$96$$

$$\frac{80}{176}$$

$$\times 7$$

$$\underline{1232}$$

$$160$$

$$\frac{36}{196}$$

$$\times 2$$

$$\underline{392}$$

$$160$$

$$\frac{72}{232}$$

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Name _____

Place Value and
Operations with Whole
Numbers

**CRITICAL
AREA**

Building a House

Ben the Builder is building a house for the Johnson family. He needs to use his math skills to build the house correctly.

1. Ben added to find how many drywall screws he needs to complete the house. Then he subtracted the number of screws he has to find how many screws he needs to buy. He used his calculator to help him, but then he dropped it. Now the screen looks like this.

$$\begin{array}{r} 138 \\ + 279 \\ \hline 4175 \\ - 3721 \\ \hline 444 \end{array}$$

What are the missing numbers? How many screws does Ben need to buy? Explain your reasoning.

The missing numbers are 4, 8, 7, 6, and 4.
Ben needs to buy 3444 screws.

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2. Ben will hire a crane to help the workers put the bundles of shingles on the roof. There is a limit to the weight the crane can lift at one time, but Ben wants the work done as quickly as possible. Explain to Ben what math he can use so that the crane uses the fewest lifts possible.

put on as much weight on the crane as possible
without going over

3. Ben needs to choose between three brands of shingles to use on the roof. He knows he needs 89 bundles of shingles but each type of shingle weighs a different amount. He needs to take the information he has about the cost of the crane and the amount it can lift to determine the cost of using each brand.

The crane costs \$350 plus an additional \$150 for each hour or part of an hour the crane is used. The crane can make 4 lifts in one hour. Each lift must weigh 650 pounds or less. The weights of a bundle of each brand of shingle can be found in the table below.

Complete the table. Show your work. Then decide which brand of shingles Ben should choose. Explain your reasoning.

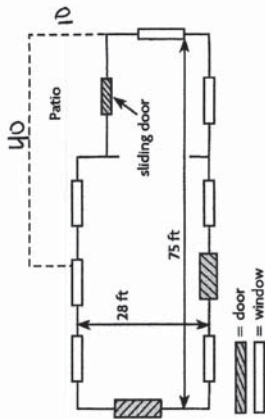
Shingle	Weight of each Bundle (lb)	Number of Bundles in One Lift	Number of Lifts Needed	Number of Hours Needed	Total Cost of the Crane
Brand A	75			1	500
Brand B	80			1	500
Brand C	85			1	500

$$\begin{array}{r} 350 \\ + 150 \\ \hline 500 \end{array}$$

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Name _____

4. This is the floor plan of the house Ben is building.



What is the estimated area of the patio? Explain your reasoning.

A = _____
 $40 \times 10 = 400 \text{ ft}^2$
 1 multiplied

5. Ben needs to buy trim for around the windows and doors of the house. Complete the table to determine how much trim he should buy. Show your work.

Remember: Windows are trimmed on all four sides. Doors are not trimmed along the bottom.

Item	Number	Height (in.)	Width (in.)	Trim Needed (in.)
Window	7	48	40	88
Door	2	80	36	116
Sliding door	1	80	72	152
Total				356

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Name _____ Place Value and Operations with Whole Numbers

Building a House

Ben the Builder is building a house for the Johnson family. He needs to use his math skills to build the house correctly.

- Ben added to find how many drywall screws he needs to complete the house. Then he subtracted the number of screws he has to find how many screws he needs to buy. He used his calculator to help him, but then he dropped it. Now the screen looks like this.

$$\begin{array}{r} 438 \\ + 279 \\ \hline 717 \\ - 321 \\ \hline 396 \end{array}$$

What are the missing numbers? How many screws does Ben need to buy? Explain your reasoning.

Ben needs 344 screws because if you add the subject you will get that answer.

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- Ben will hire a crane to help the workers put the bundles of shingles on the roof. There is a limit to the weight the crane can lift at one time, but Ben wants the work done as quickly as possible. Explain to Ben what math he can use so that the crane uses the fewest lifts possible.

He can use multiplication to find the answer.

- Ben needs to choose between three brands of shingles to use on the roof. He knows he needs 89 bundles of shingles but each type of shingle weighs a different amount. He needs to take the information he has about the cost of the crane and the amount it can lift to determine the cost of using each brand.

The crane costs \$350 plus an additional \$150 for each hour or part of an hour the crane is used. The crane can make 4 lifts in one hour. Each lift must weigh 650 pounds or less. The weights of a bundle of each brand of shingle can be found in the table below.

Complete the table. Show your work. Then decide which brand of shingles Ben should choose. Explain your reasoning.

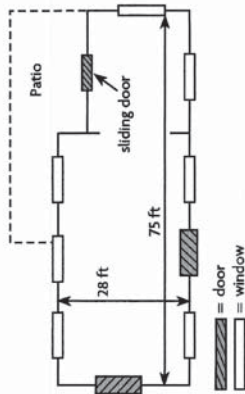
Shingle	Weight of each Bundle (lb)	Number of Bundles in One Lift	Number of Lifts Needed	Number of Hours Needed	Total Cost of the Crane
Brand A	75	89	4	1	500
Brand B	80	89	4	1	500
Brand C	85	89	4	1	500

$$\begin{array}{r} 500 \\ 150 \\ \hline 650 \end{array}$$

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Name _____

4. This is the floor plan of the house Ben is building.



$$\begin{array}{r} 75 \\ + 28 \\ \hline 103 \end{array}$$

What is the estimated area of the patio? Explain your reasoning.

$A = 103$ because you would add $75 + 28 = 103$ that is how you get your answer

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5. Ben needs to buy trim for around the windows and doors of the house. Complete the table to determine how much trim he should buy. Show your work.

Remember: Windows are trimmed on all four sides. Doors are not trimmed along the bottom.

Item	Number	Height (in.)	Width (in.)	Trim Needed (in.)
Window	88	48	40	8
Door	196	80	36	276
Sliding door	144	80	72	304
Total				588

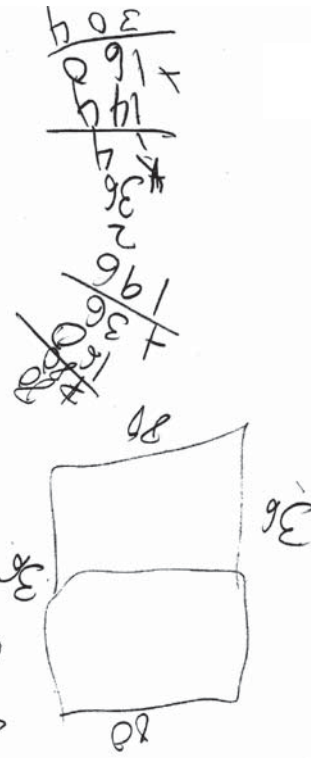
$$\begin{array}{r} 304 \\ + 276 \\ \hline 580 \end{array}$$

$$\begin{array}{r} 88 \\ + 196 \\ \hline 284 \end{array}$$

$$\begin{array}{r} 144 \\ + 196 \\ \hline 340 \end{array}$$

$$\begin{array}{r} 88 \\ + 196 \\ \hline 284 \end{array}$$

$$\begin{array}{r} 144 \\ + 196 \\ \hline 340 \end{array}$$



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Name _____

Chapter 6 Test
Page 1

1. For numbers 1a–1d, tell whether the fractions are equivalent by selecting the correct symbol.

1a. $\frac{3}{8}$ $\neq$ $\frac{12}{24}$

1c. $\frac{6}{20}$ $=$ $\frac{3}{10}$

1b. $\frac{6}{7}$ $\neq$ $\frac{18}{21}$

1d. $\frac{12}{16}$ $\neq$ $\frac{3}{5}$

2. The table shows the distances of some places in town from the school.

Distance from School	
Place	Distance
Library	$\frac{3}{5}$ mile
Post Office	$\frac{1}{2}$ mile
Park	$\frac{3}{4}$ mile
Town Hall	$\frac{8}{10}$ mile

From least to greatest, order the locations by their distance from school.

post office

library

park

town hall

3. Nicolette needs $\frac{1}{3}$ yard of fabric for her quilt. Write $\frac{1}{3}$ as an equivalent fraction with the denominators shown.

$\frac{2}{6}$

$\frac{3}{9}$

$\frac{4}{12}$

$\frac{6}{18}$

4. Juan has wrenches with the sizes shown below. Write each fraction in the correct box.

$\frac{1}{8}$ in. $\frac{5}{8}$ in. $\frac{8}{16}$ in. $\frac{9}{16}$ in. $\frac{15}{16}$ in. $\frac{5}{16}$ in.

less than $\frac{1}{2}$ in.	equal to $\frac{1}{2}$ in.	greater than $\frac{1}{2}$ in.
$\frac{1}{8}$ $\frac{5}{8}$ $\frac{8}{16}$	$\frac{8}{16}$	$\frac{5}{16}$ $\frac{9}{16}$ $\frac{15}{16}$

Name _____

Chapter 6 Test
Page 2

5. Cassie bought $\frac{3}{8}$ pound of peanuts and $\frac{1}{4}$ pound of cashews to make mixed nuts. Use the numbers to compare the amounts of peanuts and cashews Cassie bought.

1

4

3

8

$\frac{3}{8} > \frac{1}{4}$

6. Elise is doing her homework. She spends $\frac{1}{3}$ hour on math homework and $\frac{1}{5}$ hour on spelling words. For numbers 6a–6c, select Yes or No to tell whether each of the following is a true statement.

6a. 15 is a common denominator of $\frac{1}{3}$ and $\frac{1}{5}$.

Yes ☒ No ☐

6b. The amount of time spent on math homework can be rewritten as $\frac{1}{15}$.

Yes ☐ No ☒

6c. The amount of time spent on spelling words can be rewritten as $\frac{9}{15}$.

Yes ☒ No ☐

7. In the school band, $\frac{6}{24}$ of the members play the trumpet. In simplest form, what fraction of the band plays the trumpet?

$\frac{1}{4}$ of the band

8. Which pairs of fractions are equivalent? Mark all that apply.

☐ $\frac{4}{5}$ and $\frac{8}{12}$

☒ $\frac{2}{3}$ and $\frac{10}{15}$

☒ $\frac{1}{6}$ and $\frac{3}{18}$

☐ $\frac{2}{7}$ and $\frac{6}{20}$

9. Allie worked for $\frac{1}{2}$ hour on Saturday and $\frac{2}{3}$ hour on Sunday. What are four common denominators for the fractions? Explain your reasoning.

Possible answer: 6, 12, 18, 24; possible explanation: the common denominators are common multiples of both 2 and 3.

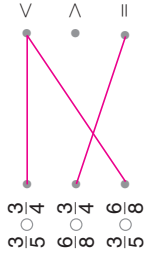
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6-22

Chapter 6 Test

Name _____

12. Edgar, Jack, and Katie walked around Woodbury Lake. Edgar walked $\frac{3}{5}$ of the distance in an hour. Jack walked $\frac{3}{4}$ of the distance in an hour. Ellen walked $\frac{6}{8}$ of the distance in an hour. Compare the distances walked by each person by matching the statements to the correct symbol. Each symbol may be used more than once or not at all.



13. Olivia is using her grandmother's chili recipe. Some of the ingredients for the recipe are given.

Chili Recipe	
$\frac{1}{2}$ cup chopped onion	$\frac{1}{4}$ cup diced green pepper
$\frac{7}{8}$ cup tomato sauce	$\frac{3}{4}$ cup tomato soup
$\frac{5}{6}$ cup tomato puree	$\frac{3}{6}$ cup salsa

Part A

Which ingredient does Olivia use the greater amount of, tomato sauce or tomato soup? Explain how you found your answer.

tomato sauce; Possible answer: I can find equivalent fractions with the same denominator and compare the numerators: $\frac{3}{4} = \frac{6}{8}$. Since $7 > 6$, $\frac{7}{8} > \frac{6}{8}$.

Part B

Olivia says that she needs the same amount of two different ingredients. Is she correct? Support your answer with information from the problem.

Yes; Possible answer: $\frac{1}{2}$ and $\frac{3}{6}$ are equivalent fractions because the simplest form of the fraction $\frac{3}{6}$ is $\frac{1}{2}$. So, Olivia needs the same amount of chopped onion and salsa.



Name _____

10. Liam works in a toy store that sells bags of marbles. He puts 10 marbles in each bag, and $\frac{4}{10}$ of the marbles are striped.

Part A

If Liam makes 3 bags of marbles, how many striped marbles does he need? Show how you can check your answer.

12 striped marbles

Possible answer: There are 10 marbles in each bag, so there are 30 marbles in 3 bags. Since $\frac{4}{10}$ and $\frac{12}{30}$ are equivalent fractions, the answer checks.

Part B

Yesterday Liam used 20 striped marbles to fill bags. How many non-striped marbles did he use to fill the bags? Explain your reasoning.

30 non-striped marbles

Possible answer: The fractions $\frac{4}{10}$ and $\frac{20}{50}$ are equivalent, so Liam used 50 marbles in all to fill the bags. Since 20 of these were striped marbles, he used $50 - 20 = 30$ non-striped marbles.

11. In Jason's homeroom, $\frac{8}{30}$ of the students like soccer best, $\frac{6}{15}$ like volleyball best, and $\frac{5}{15}$ like baseball best. For numbers 11a–11c, select True or False for each statement.

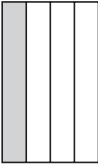
- 11a. In simplest form, $\frac{2}{15}$ of the students like soccer best. ☐ True ☒ False
- 11b. In simplest form, $\frac{3}{5}$ of the students like volleyball best. ☐ True ☒ False
- 11c. In simplest form, $\frac{1}{3}$ of the students like baseball best. ☒ True ☐ False



Name _____

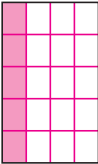
Chapter 6 Test
Page 5

14. Craig is tiling the floor of his bathroom. He wants $\frac{1}{4}$ of the tiles to be brown. What other fractions can represent the part of the tiles that will be brown? Shade the models to show your work.

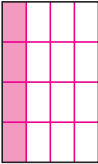


$\frac{1}{4}$

5 $\frac{5}{20}$



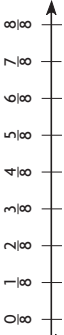
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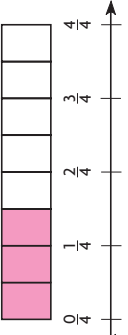
Possible answer: 16

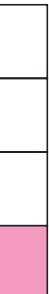
15. Georgina has $\frac{3}{8}$ yard of blue fabric and $\frac{1}{4}$ yard of red fabric. Does she have the same amount of blue and red fabric? Shade the model to show how you found your answer. Explain your reasoning.

blue fabric:



red fabric:





No; Possible answer: The models do not show the same part shaded, so the fractions are not equivalent. Georgina has more blue fabric than red fabric.

16. Martin fills an aquarium $\frac{4}{5}$ full of water. Fill in each box with a number from the list to generate equivalent fractions for $\frac{4}{5}$. Not all numbers will be used.

5

6

8

10

12

15

20

25

$\frac{4}{5} = \frac{8}{10} = \frac{12}{15} = \frac{20}{25}$

GO ON

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Chapter 6 Test

Name _____

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Page 6

17. Henry has two same-size rectangles divided into the same number of equal parts. One rectangle has $\frac{2}{5}$ of the parts shaded, and the other has $\frac{1}{2}$ of the parts shaded.

Part A

Into how many parts could each rectangle be divided? Show your work by drawing the parts of each rectangle.

Possible answer: 10 parts; sample sketch provided.




Part B

Is there more than one possible answer to Part A? If so, did you find the least number of parts into which both rectangles could be divided? Explain your reasoning.

Yes; Possible answer: There are many possible answers. The rectangles could be divided into 20 parts, 30 parts, 40 parts, and so on. Dividing each rectangle into 10 parts is the least number possible because this is the smallest number that both 2 and 5 divide into evenly.

18. Ann runs $\frac{2}{5}$ mile. Kim runs $\frac{3}{4}$ mile. They want to compare how far they each ran using the benchmark $\frac{1}{2}$. For numbers 18a–18c, select the correct answers to describe how to solve the problem.

18a. Compare Ann's distance to the benchmark: $\frac{2}{5}$

$<$

$>$

$=$

18b. Compare Kim's distance to the benchmark: $\frac{3}{4}$

$<$

$>$

$=$

18c. Ann ran _____ farther than _____ the same distance as _____ less than _____ Kim.

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Chapter 6 Test

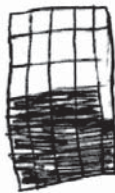
Chapter 6

Name _____

Have a Seat!

1. On one side of a football stadium are 30 suites on the Circle Level. Fourteen of the suites have 24 seats each, and the rest have 18 seats. Tyler says that $\frac{14}{30}$ is the simplest form of the fraction to describe the suites with 24 seats. Is he correct? Use models to support your conclusion and explain why Tyler is correct or incorrect.

TYLER IS NOT CORRECT BECAUSE
 $14/30$ CAN BE SIMPLIFIED TO
 $7/15$.



2. A downtown auditorium hosts large events. The auditorium can seat 600 people at one time. The sponsors of an awards dinner are using the auditorium for 450 people. The chef has prepared meals for $\frac{3}{4}$ of the usual 600 people. The pastry chef has made enough dessert for $\frac{5}{8}$ of the usual 600 people. The staff has set up $\frac{5}{6}$ of the usual 600 chairs. When the guests arrive, will everybody have a place to sit? Will there be enough meals? Enough dessert? Explain your mathematical thinking.

THEY WILL BE ENOUGH FOOD BUT
 NOT ENOUGH SEATS OR DESSERT.
 $(450/600 = 3/4)$ $3/4 = 6/8 > 5/8$ $5/8 < 3/4$
 food) not enough seats
 dessert)



3. One section of a basketball stadium has 60 seats. During one game, $\frac{1}{3}$ of the fans in this section were fans of the home team and $\frac{11}{30}$ were fans of the visiting team. Without doing any calculations, can you tell whether there were more fans for the home team than the away team? How could you use math to find which team had the most fans in that section?

THERE WERE MORE FANS FOR THE
 HOME TEAM. $12 \times 5 = 60$ THEN
 $5 \times 5 = 25$ SO HS $\frac{25}{60}$ THEN
 $30 \times 2 = 60$ AND $11 \times 2 = 22$ SO HS
 $\frac{22}{60}$. THERE WERE MORE HOME
 TEAM FANS. I CAN ESTIMATE THAT
 $\frac{5}{12}$ IS CLOSER TO $\frac{1}{2}$ (ONE HALF) THAN $\frac{11}{30}$
 IS TO $\frac{1}{2}$ (ONE HALF).

COMMON
 DENOMINATOR
 TO EACH FRACTION

4. The front portion of the Orchestra section at a music hall includes 20 boxes for people in wheelchairs. For the Thursday night show, $\frac{3}{4}$ of the boxes were occupied. For the Friday night show, $\frac{2}{3}$ of the boxes were occupied. For the Saturday afternoon show, $\frac{1}{2}$ of the boxes were occupied. Using symbols, order the fractions to find which show had the most viewers in wheelchairs. Use models to prove your conclusions.

FRIDAY HAD THE MOST VIEWERS.
 $12/20 < 14/20 < 15/20$.

THUR.	FRI.	SAT
$\frac{3}{4}$	$\frac{2}{3}$	$\frac{1}{2}$
12	14	15

$$\frac{3 \times 4}{5 \times 4} = \frac{12}{20}$$

$$\frac{2 \times 5}{4 \times 5} = \frac{10}{20}$$

$$\frac{1 \times 2}{10 \times 2} = \frac{2}{20}$$

$$\frac{12}{20} > \frac{10}{20} > \frac{2}{20}$$

Chapter 6

Name _____

Have a Seat!

1. On one side of a football stadium are 30 suites on the Circle Level. Fourteen of the suites have 24 seats each, and the rest have 18 seats. Tyler says that $\frac{14}{30}$ is the simplest form of the fraction to describe the suites with 24 seats. Is he correct? Use models to support your conclusion and explain why Tyler is correct or incorrect.

$\frac{14}{30}$ can be simpler

$\frac{7}{15}$

Tyler is wrong,



2. A downtown auditorium hosts large events. The auditorium can seat 600 people at one time. The sponsors of an awards dinner are using the auditorium for 450 people. The chef has prepared meals for $\frac{3}{4}$ of the usual 600 people. The pastry chef has made enough dessert for $\frac{5}{8}$ of the usual 600 people. The staff has set up $\frac{2}{3}$ of the usual 600 chairs. When the guests arrive, will everybody have a place to sit? Will there be enough meals? Enough dessert? Explain your mathematical thinking.

$$\frac{450}{600} = \frac{3}{4}$$

yes enough food

$$\frac{3}{4} = \frac{3}{4}$$

$\frac{5}{8} > \frac{3}{8}$ not enough dessert

$\frac{2}{3} < \frac{3}{4}$ not enough seats

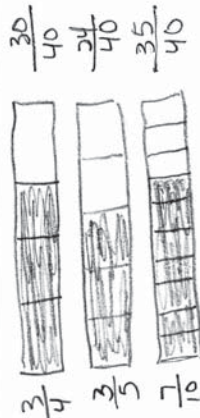
3. One section of a basketball stadium has 60 seats. During one game, $\frac{5}{12}$ of the fans in this section were fans of the home team and $\frac{11}{30}$ were fans of the visiting team. Without doing any calculations, can you tell whether there were more fans for the home team than the away team? How could you use math to find which team had the most fans in that section?

$\frac{5}{12} = \frac{25}{60}$ there were more
 $\frac{11}{30} = \frac{22}{60}$ fans on the
 $\frac{25}{60} > \frac{22}{60}$ home side

$$\begin{array}{r} 12 \\ \times 12 \\ \hline 24 \\ 120 \\ \hline 144 \end{array}$$

4. The front portion of the Orchestra section at a music hall includes 20 boxes for people in wheelchairs. For the Thursday night show, $\frac{3}{5}$ of the boxes were occupied. For the Friday night show, $\frac{2}{3}$ of the boxes were occupied. For the Saturday afternoon show, $\frac{7}{10}$ of the boxes were occupied. Using symbols, order the fractions to find which show had the most viewers in wheelchairs. Use models to prove your conclusions.

$\frac{7}{10}$ has the most
 wheelchair viewers.



Name _____

Chapter 6

Have a Seat!

1. On one side of a football stadium are 30 suites on the Circle Level. Fourteen of the suites have 24 seats each, and the rest have 18 seats. Tyler says that $\frac{14}{30}$ is the simplest form of the fraction to describe the suites with 24 seats. Is he correct? Use models to support your conclusion and explain why Tyler is correct or incorrect.

Tyler is incorrect.

$$\frac{14 \div 2}{30 \div 2} = \frac{7}{15}$$



2. A downtown auditorium hosts large events. The auditorium can seat 600 people at one time. The sponsors of an awards dinner are using the auditorium for 450 people. The chef has prepared meals for $\frac{3}{4}$ of the usual 600 people. The pastry chef has made enough dessert for $\frac{5}{6}$ of the usual 600 people. The staff has set up $\frac{3}{5}$ of the usual 600 chairs. When the guests arrive, will everybody have a place to sit? Will there be enough meals? Enough dessert? Explain your mathematical thinking.

$\frac{450}{600} = \frac{3}{4} = \frac{3}{4}$ yes, food
and dessert and seats

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3. One section of a basketball stadium has 60 seats. During one game, $\frac{1}{3}$ of the fans in this section were fans of the home team and $\frac{11}{30}$ were fans of the visiting team. Without doing any calculations, can you tell whether there were more fans for the home team than the away team? How could you use math to find which team had the most fans in that section?

Use equal fractions

I think visiting team has more fans.

4. The front portion of the Orchestra section at a music hall includes 20 boxes for people in wheelchairs. For the Thursday night show, $\frac{3}{5}$ of the boxes were occupied. For the Friday night show, $\frac{3}{4}$ of the boxes were occupied. For the Saturday afternoon show, $\frac{7}{10}$ of the boxes were occupied. Using symbols, order the fractions to find which show had the most viewers in wheelchairs. Use models to prove your conclusions.

Friday

Fri. $\frac{3}{4} = \frac{15}{20}$

Thur. $\frac{3}{5} = \frac{12}{20}$

Sat. $\frac{7}{10} = \frac{14}{20}$

Name _____

Chapter 6

Have a Seat!

1. On one side of a football stadium are 30 suites on the Circle Level. Fourteen of the suites have 24 seats each, and the rest have 18 seats. Tyler says that $\frac{14}{30}$ is the simplest form of the fraction to describe the suites with 24 seats. Is he correct? Use models to support your conclusion and explain why Tyler is correct or incorrect.

Tyler is wrong. 24 is smaller than 30.

2. A downtown auditorium hosts large events. The auditorium can seat 600 people at one time. The sponsors of an awards dinner are using the auditorium for 450 people. The chef has prepared meals for $\frac{3}{4}$ of the usual 600 people. The pastry chef has made enough dessert for $\frac{2}{3}$ of the usual 600 people. The staff has set up $\frac{3}{5}$ of the usual 600 chairs. When the guests arrive, will everybody have a place to sit? Will there be enough meals? Enough dessert? Explain your mathematical thinking.

$9/12 = \frac{3}{4}$ because $\frac{3}{4}$ everybody will not get dessert.

3. One section of a basketball stadium has 60 seats. During one game, $\frac{5}{10}$ of the fans in this section were fans of the home team and $\frac{11}{30}$ were fans of the visiting team. Without doing any calculations, can you tell whether there were more fans for the home team than the away team? How could you use math to find which team had the most fans in that section?

visiting team had more because $11/30$ is bigger than $5/12$

4. The front portion of the Orchestra section at a music hall includes 20 boxes for people in wheelchairs. For the Thursday night show, $\frac{3}{5}$ of the boxes were occupied. For the Friday night show, $\frac{3}{4}$ of the boxes were occupied. For the Saturday afternoon show, $\frac{7}{10}$ of the boxes were occupied. Using symbols, order the fractions to find which show had the most viewers in wheelchairs. Use models to prove your conclusions.

$7/10$ had the most viewers in wheelchairs because $7/10$ is greater than $3/4$ and $3/5$.

Name _____

Middle of Year Test
Page 1

Choose the correct answer.

1. John plans to use a strategy to find 32×120 . Which expression shows a strategy he could use?

☒ A $4 \times 8 \times 120$

☐ B $4 \times 8 \times 12$

☐ C $8 \times 4 \times 100$

☐ D $32 \times 0 \times 120$

2. Ava took 3,454 digital photos last year. Emily took 4 times as many. How many digital photos did Emily take last year?

☐ A 12,816

☐ B 13,616

☐ C 13,806

☒ D 13,816

3. A factory can produce 3,120 cars in a week. Which is the **best** estimate of how many cars the factory can produce in 4 weeks?

☐ A 1,200

☐ B 2,000

☒ C 12,000

☐ D 20,000

4. Ethan made this model to find the product of a 3-digit number and a 1-digit number.

What multiplication sentence represents Ethan's model?

☐ A $6 \times 483 = 2,898$

☒ B $6 \times 438 = 2,628$

☐ C $6 \times 430 = 2,580$

☐ D $6 \times 408 = 2,448$

5. Anna lives 0.8 mile from the mall. Which fraction is equivalent to 0.8?

☐ A $\frac{0}{8}$

☐ B $\frac{1}{8}$

☒ C $\frac{8}{10}$

☐ D $\frac{8}{100}$

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Name _____

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6. Jack jogged $2\frac{5}{10}$ miles on a path in the park. What is this distance written as a decimal?

☐ A 0.25 mile

☒ B 2.5 miles

☐ C 5.2 miles

☐ D 25 miles

7. Roberto walked for $\frac{6}{10}$ miles. Then he walked for $\frac{25}{100}$ miles. How far did he walk in all?

☐ A $\frac{31}{100}$ mile

☐ B $\frac{35}{100}$ mile

☒ C $\frac{85}{100}$ mile

☐ D $\frac{95}{100}$ mile

8. What is the measure of the unknown angle in the figure?

☐ A 180°

☒ B 100°

☐ C 90°

☐ D 80°

9. Melanie drew the angle below.

What name should Melanie give her angle?

☒ A obtuse angle

☐ B acute angle

☐ C right angle

☐ D straight angle

10. Miko put two angles together to form a straight angle. One angle measures 88° . What is the measure of the other angle?

☒ A 92°

☐ B 82°

☐ C 72°

☐ D 42°

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Middle of Year Test

Middle of Year Test Page 3	
Name _____ 11. How many degrees are in an angle that turns through $\frac{1}{4}$ of a circle? ☐ A 360° ☐ B 270° ☐ C 180° ☒ D 90°	14. Ryan rode his bike $\frac{19}{4}$ miles. Which mixed number shows the fraction of miles he rode his bike? ☐ A $4\frac{3}{4}$ miles ☒ B $4\frac{2}{4}$ miles ☐ C $4\frac{1}{4}$ miles ☐ D $4\frac{1}{8}$ miles
12. Rosa needs $\frac{5}{12}$ yard of blue ribbon and $\frac{6}{12}$ yard of yellow ribbon to trim a banner she is making. How much ribbon does Rosa need in all? ☒ A $\frac{11}{12}$ yard ☐ B $\frac{3}{4}$ yard ☐ C $\frac{1}{2}$ yard ☐ D $\frac{11}{24}$ yard	15. Sarah has $6\frac{2}{4}$ meters of rope and $3\frac{3}{4}$ meters of string. How much more rope does Sarah have than string? ☐ A 3 meters ☒ B $2\frac{3}{4}$ meters ☐ C $2\frac{1}{2}$ meters ☐ D $2\frac{1}{4}$ meters
13. Sam brought $\frac{7}{8}$ pound of trail mix on a camping trip. He ate $\frac{4}{8}$ pound of the trail mix. How much trail mix is left? ☐ A $\frac{11}{8}$ pound ☐ B $\frac{1}{2}$ pound ☒ C $\frac{3}{8}$ pound ☐ D $\frac{1}{8}$ pound	17. Molly and Brian are playing a game. Molly is counting by 8s. Brian is counting by 6s. They pace the counting so they will say the first common number together. What is the first number they both say together? ☐ A 12 ☐ B 18 ☒ C 24 ☐ D 32
18. Eric's friend Hiroshi is helping him learn about prime numbers. Hiroshi writes down a list of numbers and asks Eric to choose the prime number. Which number should Eric choose? ☐ A 8 ☒ B 11 ☐ C 16 ☐ D 32	19. Don texts a number pattern to his friend Lou. 4, 8, 6, 10, 8, 12, 10, 14 Lou texts the next number in the pattern back to Don. What is the number? ☐ A 18 ☐ B 15 ☒ C 12 ☐ D 10
20. Mark's family has lived in the same town for 3 years. How many months have they lived in the town? ☒ A 36 months ☐ B 32 months ☐ C 30 months ☐ D 24 months	20. Mark's family has lived in the same town for 3 years. How many months have they lived in the town? ☒ A 36 months ☐ B 32 months ☐ C 30 months ☐ D 24 months



Middle of Year Test Page 4	
Name _____ 16. Maya has 28 apples, 12 oranges, and 8 mangos. She wants to put an equal number of each kind of fruit into baskets so all of the baskets will be the same. How many of each kind of fruit can Maya put in each basket? ☐ A 4 ☒ B 1, 2 or 4 ☐ C 1 or 4 ☐ D 1, 3, 4, 6, or 8	19. Don texts a number pattern to his friend Lou. 4, 8, 6, 10, 8, 12, 10, 14 Lou texts the next number in the pattern back to Don. What is the number? ☐ A 18 ☐ B 15 ☒ C 12 ☐ D 10
17. Molly and Brian are playing a game. Molly is counting by 8s. Brian is counting by 6s. They pace the counting so they will say the first common number together. What is the first number they both say together? ☐ A 12 ☐ B 18 ☒ C 24 ☐ D 32	20. Mark's family has lived in the same town for 3 years. How many months have they lived in the town? ☒ A 36 months ☐ B 32 months ☐ C 30 months ☐ D 24 months
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Page 5

Name _____

21. The table shows a pattern for two units of customary weight.

1	16
2	32
3	48
4	64

Which are the best labels for each column?

(A) Yards, Feet

(B) Kilograms, Grams

(C) Tons, Pounds

(D) Pounds, Ounces

22. The bus left for the nature center at 9:15 A.M. The trip there took 1 hour 45 minutes. What time did the bus arrive at the nature center?

(A) 11:00 A.M.

(B) 10:45 A.M.

(C) 10:15 A.M.

(D) 10:00 A.M.

23. Pedro mixed 1 pound 6 ounces of apples with 1 pound 4 ounces of oranges and 12 ounces of strawberries to make a fruit salad. How much fruit salad does he have?

(A) 3 pounds 6 ounces

(B) 3 pounds 4 ounces

(C) 3 pounds

(D) 2 pounds 6 ounces

24. Kevin's brother got 738,256 hits on his new website. What is the value of the digit 7 in 738,256?

(A) 7,000

(B) 70,000

(C) 700,000

(D) 7,000,000

25. Tina used number tiles to make the number 327,869. Jeremy used number tiles to make the number 327,689. Which statement about these numbers is correct?

(A) $327,689 > 327,869$

(B) $327,689 < 327,869$

(C) $327,689 = 327,869$

(D) $327,869 < 327,689$

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Name _____

26. Paul got a new video game. He scored 35,698 points on his first game and 48,735 points on his second game. What was the total number of points for both games?

(A) 84,433

(B) 84,423

(C) 84,333

(D) 74,433

27. The city Laura lives in has 56,759 people living in it. The city Jeff lives in has 82,458 people living in it. How many more people live in Jeff's city?

(A) 35,699

(B) 25,789

(C) 25,699

(D) 25,409

28. The public pool Brent goes to has a perimeter of 270 feet. The width of the pool is 45 feet. What is the length of the rectangular pool?

(A) 225 feet

(B) 180 feet

(C) 90 feet

(D) 6 feet

29. Elaine builds a rectangular flower box to put on her family's porch.

35 in.

12 in.

What is the perimeter of the flower box?

(A) 47 inches

(B) 82 inches

(C) 94 inches

(D) 420 inches

30. Mr. Lee drew these plans for a new garden in his backyard.

5 ft

4 ft

10 ft

15 ft

6 ft

What will the area of Mr. Lee's garden be?

(A) 150 square feet

(B) 110 square feet

(C) 90 square feet

(D) 40 square feet

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Middle of Year Test

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Middle of Year Test Page 7	
Name _____ 31. Joseph's notebook cover is 12 inches by 8 inches. He put a wildlife sticker on the notebook. If the sticker is 3 inches by 2 inches. How much of the notebook cover is still showing? (A) 108 square inches (B) 96 square inches (C) 90 square inches (D) 84 square inches	34. Between noon and 1 P.M., customers bought 76 CDs at \$16 each. What is the total amount customers paid for the CDs? (A) \$1,216 (B) \$1,186 (C) \$1,116 (D) \$532
32. Which shows the best estimate to use to find 18×62? (A) $20 \times 70 = 1,400$ (B) $20 \times 60 = 1,200$ (C) $20 \times 50 = 1,000$ (D) $10 \times 70 = 700$	35. Marjorie has 36 boxes of video games to unpack and put on shelves. Each box contains 28 video games. How many video games in all need to be unpacked? (A) 2,008 (B) 1,008 (C) 968 (D) 908
33. Miko can type 70 words in one minute. At that rate, how many words can she type in 12 minutes? (A) 800 (B) 820 (C) 840 (D) 880	38. Marko runs $\frac{3}{5}$ mile 3 times a week. How far does Marko run each week? (A) $3\frac{3}{5}$ miles (B) $2\frac{2}{5}$ miles (C) $1\frac{4}{5}$ miles (D) $1\frac{3}{5}$ miles



Middle of Year Test Page 8	
Name _____ 36. Megan says she needs a piece of rope that is $\frac{15}{6}$ feet long. How can Megan rename the fraction as a mixed number? (A) $3\frac{3}{6}$ (B) $2\frac{3}{6}$ (C) $2\frac{1}{3}$ (D) $1\frac{3}{6}$	39. Ruby spends $1\frac{1}{4}$ hours a day practicing the piano. She practices 6 days a week. How much time in all does Ruby spend practicing the piano each week? (A) $8\frac{1}{2}$ hours (B) $7\frac{1}{2}$ hours (C) $7\frac{1}{4}$ hours (D) $6\frac{1}{4}$ hours
37. Carla named a fraction that was not a multiple of $\frac{3}{8}$. Which fraction could she have named? (A) $\frac{6}{8}$ (B) $\frac{9}{8}$ (C) $\frac{12}{8}$ (D) $\frac{14}{8}$	40. On Friday, 142 fourth graders went on a field trip to an aquarium. The staff divided them into 7 tour groups. Which is the best estimate of the number of students in each group? (A) 50 (B) 40 (C) 30 (D) 20
38. Marko runs $\frac{3}{5}$ mile 3 times a week. How far does Marko run each week? (A) $3\frac{3}{5}$ miles (B) $2\frac{2}{5}$ miles (C) $1\frac{4}{5}$ miles (D) $1\frac{3}{5}$ miles	40. On Friday, 142 fourth graders went on a field trip to an aquarium. The staff divided them into 7 tour groups. Which is the best estimate of the number of students in each group? (A) 50 (B) 40 (C) 30 (D) 20



Name _____

Middle of Year Test
Page 9

41. Jared needs 54 balloons to decorate a room for a birthday party. The balloons come in packages of 20. What is the smallest number of packages of balloons Jared should buy?
- (A) 5
(B) 4
(C) 3
(D) 2

How many lines of symmetry does the figure have?



- (A) 4
(B) 3
(C) 2
(D) 1

42. A new pet store handed out 2,472 coupons in 4 days. They handed out the same number of coupons each day. How many coupons did the store hand out each day?
- (A) 61
(B) 518
(C) 608
(D) 618

44. Andrew drew the figure below.



Which of the following terms **best** describes the figure Julie drew?

- (A) line segment
(B) line
(C) angle
(D) ray

43. A sock factory packs 5 pairs of socks to a package. How many packages can they pack with 3,000 pairs of socks?
- (A) 6 packages
(B) 60 packages
(C) 600 packages
(D) 6,000 packages

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46. A fishpond is in the shape of a rhombus. Which figure could be the shape of the fishpond?



(B)



(C)

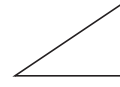


(D)



47. A sign is in the shape of an acute triangle. Which of the following could be the shape of the sign?

(A)



(B)



(D)



48. Jing read $\frac{1}{2}$ of his book on Saturday and $\frac{2}{3}$ of his book on Sunday. Which number is a common denominator for $\frac{1}{2}$ and $\frac{2}{3}$?
- (A) 1
(B) 4
(C) 6
(D) 10

49. Tami needs $\frac{3}{4}$ gallon of paint. Which fraction is equivalent to $\frac{3}{4}$?
- (A) $\frac{3}{16}$
(B) $\frac{9}{16}$
(C) $\frac{9}{12}$
(D) $\frac{6}{4}$

50. Nori bought $\frac{2}{3}$ pound of chicken salad and $\frac{3}{4}$ pound of tuna salad for a picnic. Which statement correctly compares the fractions?
- (A) $\frac{2}{3} > \frac{3}{4}$
(B) $\frac{3}{4} > \frac{2}{3}$
(C) $\frac{2}{3} = \frac{3}{4}$
(D) $\frac{3}{4} < \frac{2}{3}$

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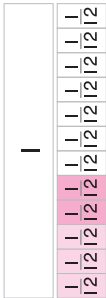
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Middle of Year Test



Name _____

1. Ben uses $\frac{3}{12}$ pound of strawberries and $\frac{2}{12}$ pound of blueberries to make jam.



How many pounds of berries does Ben use to make jam?

$\frac{5}{12}$ pound

2. To get the correct color, Johan mixed $3\frac{1}{4}$ quarts of white paint, $1\frac{2}{4}$ quarts of blue paint, and $2\frac{3}{4}$ quarts of green paint. How much paint did Johan make?

Johan made $7\frac{2}{4}$ quarts of paint.

3. Nick had $3\frac{1}{4}$ bottles of water for his wrestling practice. When he finished he had $1\frac{2}{4}$ bottles of water left. He said he used $2\frac{1}{4}$ bottles of water during the practice. Do you agree? Explain.

No; Possible explanation: When I subtract $1\frac{2}{4}$ from $3\frac{1}{4}$, the answer is not $2\frac{1}{4}$. The mixed number $3\frac{1}{4}$ needs to be regrouped as a mixed number with a fraction greater than 1. $3\frac{1}{4} = 2\frac{5}{4}$, so $2\frac{5}{4} - 1\frac{2}{4} = 1\frac{3}{4}$.

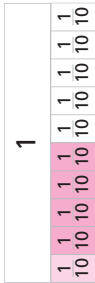


Name _____

4. The school carnival is divided into sections. The dunk tanks are in $\frac{1}{10}$ of the carnival. Games are in $\frac{4}{10}$ of the carnival. Student exhibits are in $\frac{5}{10}$ of the carnival.

Part A

Use the model. What fraction of the carnival is dunk tanks and games?



The fraction of the carnival with dunk tanks and games is $\frac{5}{10}$ or $\frac{1}{2}$.

Part B

How much greater is the part of the carnival with student exhibits than games? Explain how the model could be used to find the answer.

$\frac{1}{10}$ greater; Possible explanation: I could shade 5 sections to represent the section with the student exhibits. Then I could cross out 4 sections to represent the games. This leaves 1 section, so the fraction of the carnival with student exhibits is $\frac{1}{10}$ greater than the games.

5. Ilene is making smoothies. The recipe calls for $1\frac{1}{4}$ cups of strawberries. How many cups of strawberries, written as a fraction greater than one, are used in the recipe?

$\frac{5}{4}$ cups

6. Dillon's dad sells golf balls online. He sells $\frac{4}{5}$ of the golf balls. Select a way $\frac{4}{5}$ can be written as a sum of fractions. Mark all that apply.

- ☒ $\frac{1}{5} + \frac{1}{5} + \frac{2}{5}$
☒ $\frac{2}{5} + \frac{2}{5}$
☒ $\frac{1}{5} + \frac{1}{5} + \frac{1}{5}$
☒ $\frac{1}{5} + \frac{1}{5} + \frac{1}{5}$
☒ $\frac{2}{5} + \frac{2}{5} + \frac{1}{5}$
☒ $\frac{1}{5} + \frac{1}{5} + \frac{1}{5} + \frac{1}{5} + \frac{1}{5}$



Name _____

Chapter 7 Test
Page 3

7. Betsy brought $\frac{6}{12}$ pound of trail mix on a camping trip. She ate $\frac{4}{12}$ pound of the trail mix. How much trail mix is left?

$\frac{2}{12}$ or $\frac{1}{6}$ pound

8. In a survey, $\frac{5}{10}$ of the students chose a dog and $\frac{1}{10}$ chose a fish as their favorite pet. What fraction shows the students who chose a dog or a fish as their favorite pet?

Part A

Shade the model to show your answer.

1									
1	1	1	1	1	1	1	1	1	1
10	10	10	10	10	10	10	10	10	10

$\frac{6}{10}$ of the students chose a dog or fish.

Part B

How are the numerator and denominator of your answer related to the model? Explain.

Possible explanation: The numerator shows the number of parts shaded. The denominator shows the size of the parts.

9. Match the equation with the property used.

$\frac{3}{5} + \left(\frac{2}{5} + \frac{1}{5}\right) = \left(\frac{3}{5} + \frac{2}{5}\right) + \frac{1}{5}$

$\left(\frac{4}{8} + \frac{1}{8}\right) + 2\frac{7}{8} = 4\frac{1}{8} + \left(\frac{1}{8} + 2\frac{7}{8}\right)$

$3\frac{1}{5} + \left(5 + 1\frac{3}{5}\right) = 3\frac{1}{5} + \left(1\frac{3}{5} + 5\right)$

$\left(1\frac{4}{10} + 1\frac{1}{10}\right) + 3\frac{6}{10} = \left(1\frac{1}{10} + 1\frac{4}{10}\right) + 3\frac{6}{10}$

Commutative Property

Associative Property

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Chapter 7 Test

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10. For numbers 10a–10e, select Yes or No to show if the sum or difference is correct.

10a. $\frac{3}{5} + \frac{1}{5} = \frac{4}{5}$ ☒ Yes ☐ No

10b. $\frac{6}{12} - \frac{2}{12} = \frac{8}{12}$ ☐ Yes ☒ No

10c. $\frac{5}{10} + \frac{2}{10} = \frac{7}{10}$ ☒ Yes ☐ No

10d. $\frac{6}{8} - \frac{4}{8} = \frac{2}{8}$ ☒ Yes ☐ No

10e. $\frac{3}{9} + \frac{2}{9} = \frac{5}{18}$ ☐ Yes ☒ No

11. SuLee has $8\frac{1}{4}$ yards of blue fabric and $4\frac{3}{4}$ yards of green fabric. How much more blue fabric does SuLee have than green fabric?

$3\frac{3}{4}$ yards more blue fabric

12. Aidan is making cinnamon apples. He needs $3\frac{1}{4}$ teaspoons of cinnamon. He needs $1\frac{1}{2}$ teaspoons of nutmeg.

Part A

Aidan incorrectly subtracted the two mixed numbers to find how much more cinnamon than nutmeg he needs. His work is shown below.

$$3\frac{1}{4} - 1\frac{1}{2} = \frac{12}{4} - \frac{4}{4} = \frac{8}{4} = 2$$

Why is Aidan's work incorrect?

Possible explanation: Aidan changed only the whole number parts of the mixed numbers to fourths. He forgot to add the fraction part of the mixed number.

Part B

How much more cinnamon than nutmeg will he need? Show your work.

$3\frac{1}{4} - 1\frac{1}{2} = \frac{13}{4} - \frac{6}{4} = \frac{7}{4} = 1\frac{3}{4}$
Aidan will need $1\frac{3}{4}$ teaspoons more of cinnamon than nutmeg.

GO ON

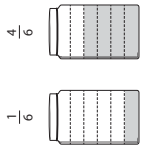
Chapter Resources
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Chapter 7 Test

Name _____

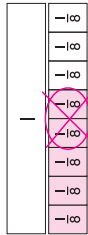
13. Jack has two jars of wax. One jar is $\frac{1}{6}$ full. The other jar is $\frac{4}{6}$ full.



Use the fractions to write an equation to find the amount of wax Jack has.

$$\frac{1}{6} + \frac{4}{6} = \frac{5}{6}$$

14. Ellen needs $\frac{5}{8}$ yard of fringe for her scarf. Ling needs $\frac{2}{8}$ yard of fringe for her scarf. How much more fringe does Ellen need than Ling? Shade the model to show your answer.



Ellen needs $\frac{3}{8}$ yard more fringe than Ling.

15. Mindi planted beans in $\frac{4}{10}$ of her garden and peas in $\frac{5}{10}$ of her garden. What fraction of the garden has beans or peas?

Mindi's garden has $\frac{9}{10}$ beans or peas.

16. Draw a line to show the mixed number and fraction that have the same value.



17. Royce walks $\frac{3}{4}$ mile to school and $\frac{3}{4}$ mile home each day.

It will take Royce $\frac{3}{4}$ days to walk 3 miles.



Name _____

18. Hector has 3 weeks before his first track meet. He recorded the amount of time he spent running during week 1 of his training. He spent $1\frac{5}{12}$ hours running on Tuesday, $2\frac{6}{12}$ hours running on Wednesday, and $1\frac{9}{12}$ hours running on Thursday.

Part A

How many hours did Hector run during week 1? Explain how you found your answer.

$5\frac{9}{12}$ or $5\frac{3}{4}$ hours; Possible explanation: First, I add the whole numbers, $1 + 2 + 1 = 4$ hours. Then, I add the fractions by combining $\frac{6}{12} + \frac{6}{12}$ into one whole. So, $4 + 1 + \frac{9}{12} = 5\frac{9}{12}$.

Part B

Hector wants to run 18 hours by his first track meet. Suppose he runs the same number of hours in week 2 and week 3 of his training as in week 1. Will he run enough hours to meet his goal? Explain.

No; Possible explanation: If I add the times from the 3 weeks, or $5\frac{9}{12} + 5\frac{9}{12} + 5\frac{9}{12}$, the sum is only $15\frac{27}{12}$ or $15 + \frac{12}{12} + \frac{12}{12} + \frac{3}{12}$ or $17\frac{1}{4}$ hours. This is less than 18 hours.

19. Harrison ate $\frac{3}{12}$ of a sushi roll. Miles ate $\frac{5}{12}$ of the same sushi roll. How much more of the sushi roll did Miles eat than Harrison?

$\frac{2}{12}$ or $\frac{1}{6}$ of the sushi roll

20. For numbers 20a–20d, choose True or False for each sentence.

- 20a. $6\frac{7}{10} + 2\frac{1}{10}$ is equal to $4\frac{8}{10}$. ☐ True ☒ False
20b. $1\frac{2}{8} + 3\frac{7}{8}$ is equal to $4\frac{1}{8}$. ☐ True ☒ False
20c. $1\frac{3}{5} + 2\frac{4}{5}$ is equal to $4\frac{2}{5}$. ☒ True ☐ False
20d. $9\frac{5}{6} - 3\frac{2}{6}$ is equal to $6\frac{3}{6}$. ☒ True ☐ False

21. Winter break starts in $3\frac{4}{7}$ weeks. Write the mixed number as a fraction greater than one.

$$3\frac{4}{7} = \frac{25}{7}$$



Name _____

Chapter 7

Lending a Hand

1. Enrique lives with his grandmother in an apartment building for senior citizens. He earns extra money by running errands for some of his grandmother's neighbors. Enrique charges \$2 for every $\frac{1}{4}$ hour he spends working. He spent $\frac{3}{4}$ hour going to the deli for Mr. McGuire, $1\frac{1}{4}$ hours delivering papers for the apartment manager, and $\frac{3}{4}$ hour picking up Mrs. Shultz's groceries. Did Enrique earn enough money to buy an \$18 DVD? Explain your math reasoning using models.

Yes, because he earned \$20. I broke

all of them into $\frac{1}{4}$'s.

$$\frac{1}{4} + \frac{3}{4} + 2\frac{2}{4} + 1\frac{3}{4} + 1 = 5\frac{8}{4}$$

2. Enrique's grandmother tried to help him figure out how much he earned this week. This is how she calculated the hours Enrique worked.

$$1\frac{1}{4} + \frac{3}{4} + 2\frac{2}{4} + 1\frac{3}{4} + 1 = 5\frac{8}{4}$$

Is she correct? If not, explain the error and find the correct sum.

No, she didn't add it correctly.

The sum of the problem is $7\frac{1}{4}$.

She added the denominators.

$$7\frac{1}{4}$$

$$\begin{array}{r} \text{deli} = \$4 \\ \text{paper} = \$6 \\ \text{groceries} = \$6 \\ \hline \$16 \end{array}$$

3. On Saturdays, Enrique charges \$2 for every $\frac{1}{5}$ hour he spends running errands. He earned \$50 last Saturday. He picked up dry cleaning for Mrs. Abel for $\frac{2}{5}$ hour, ran to the post office for Mr. Kovac for $1\frac{1}{5}$ hours, and swept up the lobby of the building for the apartment manager for $\frac{2}{5}$ hour. He got a \$4 tip from Mr. Kovac. How long did it take him to walk Mrs. Camacho's dog and pick up her groceries? Show your work.

$$\begin{array}{r} \$50 \\ -\$36 \\ \hline \$14 \end{array}$$

$$\begin{array}{r} \$36 \\ -\$4 \\ \hline \end{array}$$

$1\frac{1}{5}$ hrs I took back
at the post office and
saw that $1\frac{1}{5}$ equals
\$14.

4. Enrique charges \$5 for every $\frac{1}{5}$ hour he spends walking dogs. In the morning he walks Buttons for $\frac{2}{5}$ hour, Bruno for $\frac{3}{5}$ hour, and Pepper for $\frac{3}{5}$ hour, Monday through Friday. On Saturdays he takes Mimi, Diva, and Coco to the dog park for $\frac{3}{5}$ of an hour. On Wednesday this week it rained and Pepper wanted to stay out for only $\frac{1}{5}$ hour. How many hours did Enrique spend with the dogs this week? Explain your method.

8 hours, I added all of the fractions.

$$\text{am: } \frac{2}{5} + \frac{3}{5} + \frac{3}{5} = \frac{8}{5}$$

$$\text{all week } \frac{6}{5} + \frac{6}{5} + \frac{6}{5} + \frac{6}{5} + \frac{6}{5} = \frac{30}{5}$$

$$\text{Pepper: } \frac{2}{5} - \frac{1}{5} = \frac{1}{5}$$

$$\frac{30}{5} - \frac{2}{5} - \frac{2}{5} = \frac{28}{5}$$

$$\text{Saturday: } \frac{4}{5} + \frac{4}{5} + \frac{4}{5} = \frac{12}{5}$$

$$\frac{28}{5} + \frac{12}{5} = \frac{40}{5} = 8$$

$$8 \text{ hrs}$$

Buttons \$10
Bruno \$10
Pepper \$15
Mimi, Diva, Coco \$20

Name _____

Chapter 7

Lending a Hand

1. Enrique lives with his grandmother in an apartment building for senior citizens. He earns extra money by running errands for some of his grandmother's neighbors. Enrique charges \$2 for every $\frac{1}{4}$ hour he spends working. He spent $\frac{3}{4}$ hour going to the deli for Mr. McGuire, $1\frac{1}{4}$ hours delivering papers for the apartment manager, and $\frac{3}{4}$ hour picking up Mrs. Shultz's groceries. Did Enrique earn enough money to buy an \$18 DVD? Explain your math reasoning using models.

Yes, because he got \$4 for deli,
\$10 deli, \$6 groceries.

deli  groceries  paper  10

2. Enrique's grandmother tried to help him figure out how much he earned this week. This is how she calculated the hours Enrique worked.

$$\begin{array}{r} 1\frac{1}{4} + 1\frac{1}{4} + 2\frac{3}{4} + 1\frac{1}{4} + 1 = 5\frac{8}{4} \\ 1\frac{1}{4} + 1\frac{1}{4} + 2\frac{3}{4} + 1\frac{1}{4} + 1 = 5\frac{8}{4} \end{array}$$

Is she correct? If not, explain the error and find the correct sum.

No, she was wrong. The sum was $7\frac{1}{4}$. Her error was that she just added it all together even the bottom.

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3. On Saturdays, Enrique charges \$2 for every $\frac{1}{4}$ hour he spends running errands. He earned \$50 last Saturday. He picked up dry cleaning for Mrs. Abel for $\frac{3}{4}$ hour, ran to the post office for Mr. Kovac for $1\frac{1}{4}$ hours, and swept up the lobby of the building for the apartment manager for $\frac{3}{4}$ hour. He got a \$4 tip from Mr. Kovac. How long did it take him to walk Mrs. Camacho's dog and pick up her groceries? Show your work.

$1\frac{1}{6}$ hours
I saw that 50
it was \$14 so $50 - 14 = 36$
I looked back and saw it was the same as the post office 1 1/6 hours

4. Enrique charges \$5 for every $\frac{1}{4}$ hour he spends walking dogs. In the morning he walks Buttons for $\frac{3}{4}$ hour, Bruno for $\frac{1}{4}$ hour, and Pepper for $\frac{3}{4}$ hour, Monday through Friday. On Saturdays he takes Mimi, Diva, and Coco to the dog park for $\frac{3}{4}$ of an hour. On Wednesday this week it rained and Pepper wanted to stay out for only $\frac{1}{4}$ hour. How many hours did Enrique spend with the dogs this week? Explain your method.

eleven hrs, I added all of them then subtracted by 7 and got 11.

$$\begin{array}{r} 21 \\ 55 \\ \hline 76 \end{array} \quad \frac{1}{5} = \frac{11}{5}$$

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Name _____

Chapter 7

Lending a Hand

1. Enrique lives with his grandmother in an apartment building for senior citizens. He earns extra money by running errands for some of his grandmother's neighbors. Enrique charges \$2 for every $\frac{1}{4}$ hour he spends working. He spent $\frac{3}{4}$ hour going to the deli for Mr. McGuire, $1\frac{1}{4}$ hours delivering papers for the apartment manager, and $\frac{3}{4}$ hour picking up Mrs. Shultz's groceries. Did Enrique earn enough money to buy an \$18 DVD? Explain your math reasoning using models.

Yes he had enough to buy a \$18 DVD
if you separate everything into
 $\frac{1}{4}$ you would get \$20

$$\begin{array}{r} 18 \\ -4 \\ \hline 14 \\ -10 \\ \hline 4 \end{array}$$

$$6\frac{2}{4} + \frac{3}{4} = 7\frac{1}{4}$$

2. Enrique's grandmother tried to help him figure out how much he earned this week. This is how she calculated the hours Enrique worked.

$$1\frac{1}{4} + \frac{3}{4} + 2\frac{2}{4} + 1\frac{3}{4} + 1 = 5\frac{8}{4}$$

Is she correct? If not, explain the error and find the correct sum.

No she is not correct she didn't
add it the right way.

$$\begin{array}{r} \text{deli} = 34 \\ \text{paper} = 10 \\ \text{food} = 36 \\ \hline 20 \end{array}$$

3. On Saturdays, Enrique charges \$2 for every $\frac{1}{4}$ hour he spends running errands. He earned \$50 last Saturday. He picked up dry cleaning for Mrs. Abel for $\frac{1}{4}$ hour, ran to the post office for Mr. Kovac for $1\frac{1}{4}$ hours, and swept up the lobby of the building for the apartment manager for $\frac{3}{4}$ hour. He got a \$4 tip from Mr. Kovac. How long did it take him to walk Mrs. Camacho's dog and pick up her groceries? Show your work.

$$\begin{array}{r} \text{I saw post office} \\ \text{was 14 which is } 4 \times 2 \\ 1\frac{1}{4} \text{ hrs and dry} \\ \text{is } \frac{4}{6} \text{ so } 1\frac{5}{6} \text{ hrs.} \end{array}$$

4. Enrique charges \$5 for every $\frac{1}{4}$ hour he spends walking dogs. In the morning he walks Buttons for $\frac{3}{4}$ hour, Bruno for $\frac{1}{4}$ hour, and Pepper for $\frac{3}{4}$ hour, Monday through Friday. On Saturdays he takes Mimi, Diva, and Coco to the dog park for $\frac{1}{4}$ of an hour. On Wednesday this week it rained and Pepper wanted to stay out for only $\frac{1}{4}$ hour. How many hours did Enrique spend with the dogs this week? Explain your method.

I added all the fraction
together and got 11 hrs.

$$\begin{array}{l} \text{dry} = 4 \times 2 = 8 \\ \text{post} = 7 \times 2 = 14 \\ \text{lobby} = 5 \times 2 = 10 \end{array}$$

$$\begin{array}{r} \text{Buttons } 3 \times \frac{1}{4} = 7.50 \\ \text{Bruno } 1 \times \frac{1}{4} = 2.50 \\ \text{Pepper } 3 \times \frac{1}{4} = 7.50 \\ \hline 17.50 \end{array}$$

$$\begin{array}{r} 13 \\ + 5 \\ \hline 18 \end{array}$$

$$\begin{array}{r} 256 \\ + 152 \\ \hline 408 \end{array}$$

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Chapter 7

Name _____

Lending a Hand

1. Enrique lives with his grandmother in an apartment building for senior citizens. He earns extra money by running errands for some of his grandmother's neighbors. Enrique charges \$2 for every $\frac{1}{4}$ hour he spends working. He spent $\frac{3}{4}$ hour going to the deli for Mr. McGuire, $1\frac{1}{4}$ hours delivering papers for the apartment manager, and $\frac{3}{4}$ hour picking up Mrs. Shultz's groceries. Did Enrique earn enough money to buy an \$18 DVD? Explain your math reasoning using models.

yes with 2 extra
dollars

deli = \$4
papers = \$5.00
food = \$6.00

2. Enrique's grandmother tried to help him figure out how much he earned this week. This is how she calculated the hours Enrique worked.

$$1\frac{1}{4} + \frac{3}{4} + 2\frac{2}{4} + 1\frac{3}{4} + 1 = 5\frac{8}{16}$$

Is she correct? If not, explain the error and find the correct sum.

yes

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3. On Saturdays, Enrique charges \$2 for every $\frac{1}{8}$ hour he spends running errands. He earned \$50 last Saturday. He picked up dry cleaning for Mrs. Abel for $\frac{1}{4}$ hour, ran to the post office for Mr. Kovac for $1\frac{1}{8}$ hours, and swept up the lobby of the building for the apartment manager for $\frac{3}{8}$ hour. He got a \$4 tip from Mr. Kovac. How long did he take him to walk Mrs. Camacho's dog and pick up her groceries? Show your work.

3 hrs
\$50
\$4
\$54

Dry Clean = 4x2 = 8
Post Office 7x2 = 14
Sweep lobby 5x2 = 10

4. Enrique charges \$5 for every $\frac{1}{2}$ hour he spends walking dogs. In the morning he walks Buttons for $\frac{2}{3}$ hour, Bruno for $\frac{1}{3}$ hour, and Pepper for $\frac{2}{3}$ hour. Monday through Friday. On Saturdays he takes Mimi, Diva, and Coco to the dog park for $\frac{4}{5}$ of an hour. On Wednesday this week it rained and Pepper wanted to stay out for only $\frac{1}{5}$ hour. How many hours did Enrique spend with the dogs this week? Explain your method.

5x5 = 25
5x2 = 10
5x1 = 5
5x3 = 15
5x1 = 5
5x4 = 20

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- 4.** Hannah is baking 3 batches of health bars. She needs $1\frac{2}{3}$ cups of carob chips for each batch of bars.

Part A

Hannah completed the multiplication below and said she needed 6 cups of carob chips for 3 batches of bars. What is Hannah's error?

$$\begin{array}{l} 6 \\ = \\ \frac{18}{3} \\ = \\ \frac{6}{3} \times \\ 3 \\ = \\ \frac{12}{3} \times \\ 3 \end{array}$$

Possible explanation: Hannah did not write the mixed number, $1\frac{2}{3}$, as a fraction correctly. $1\frac{2}{3}$ is not equal to $\frac{5}{3}$.

Part B

What is the correct number of cups Hannah needs for 3 batches of bars? Explain how you found your answer.

5 cups; possible explanation: first I wrote $1\frac{2}{3}$ as a fraction. $1\frac{2}{3} = \frac{3}{3} + \frac{2}{3} = \frac{5}{3}$; then, I multiplied $3 \times \frac{5}{3} = \frac{15}{3} = 5$.

- 5.** Which fraction is a multiple of $\frac{1}{8}$? Mark all that apply.

$\frac{3}{8}$	$\frac{8}{12}$	$\frac{2}{8}$	$\frac{8}{10}$
☐	☒	☐	☒
$\frac{3}{8}$	$\frac{8}{12}$	$\frac{2}{8}$	$\frac{8}{10}$
☒	☐	☐	☐

- 6.** Bo recorded a basketball game that lasted $2\frac{1}{2}$ hours. Bo watched the game 4 times last week. How many hours did Bo spend watching the game? Show your work.

10 hours; $2\frac{1}{2} \times 4 = \frac{5}{2} \times 4 = \frac{20}{2} = 10$

- 7.** Rudi is comparing shark lengths. She reads that a sandbar shark is $4\frac{1}{2}$ feet long. A thresher shark is 3 times as long as a sandbar shark. Complete the model. Then find the length of a thresher shark.

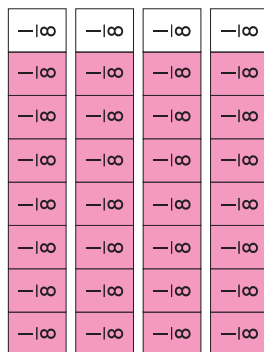
A thresher shark is $13\frac{1}{2}$ feet long.

GO ON 

- 1.** What are the next four multiples of $\frac{1}{7}$?

$$\frac{2}{7}, \frac{3}{7}, \frac{4}{7}, \frac{5}{7}$$

- 2.** Sarah is making 4 batches of granola bars. She adds $\frac{7}{8}$ cup peanuts to each batch. Her measuring cup holds $\frac{1}{8}$ cup. How many times must Sarah measure $\frac{1}{8}$ cup of peanuts to have enough for the granola bars? Shade the models to show your answer.



Sarah must measure $\frac{1}{8}$ cup **28** times.

- 3.** Alice walks $\frac{6}{10}$ mile every day. How many miles does she walk in 5 days?

3 miles

GO ON 

Name _____

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Page 3

8. Phil made a number line showing the multiples of $\frac{3}{6}$.

The product $2 \times \frac{3}{6}$ is shown by the fraction $\frac{6}{6}$ on the number line.

9. Tara has softball practice Tuesday, Wednesday, Thursday, and Sunday. Each practice is $1\frac{1}{3}$ hours. Tara says she will have practice for 3 hours this week.

Part A

Without multiplying, explain how you know Tara is incorrect.

Possible explanation: Tara needs to find $4 \times 1\frac{1}{3}$. If she estimates 4×1 hour, she finds that practice is at least 4 hours; 4 is greater than 3, so Tara is incorrect.

Part B

How long will Tara have softball practice this week? Write your answer as a mixed number. Show your work.

$5\frac{1}{3}$ hours; $4 \times 1\frac{1}{3} = 4 \times \frac{4}{3} = \frac{16}{3} = 5\frac{1}{3}$

10. Look at the number line. Write the missing fractions.

11. Trevor's pet goat weighed $6\frac{3}{8}$ pounds when it was born. By age 3, the goat weighed 8 times as much. Fill each box with a number or symbol from the list to show how to find the weight of Trevor's goat at age 3. Not all numbers and symbols may be used.

8

×

$6\frac{3}{8}$

weight =

$8\frac{3}{8}$

8

3

weight =

$6\frac{3}{8}$

+

8

×

$6\frac{3}{8}$

weight =

$6\frac{3}{8}$

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weight =

$6\frac{3}{8}$

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Name _____

15. The lengths of different types of snakes at a zoo are shown in the table.

Snake's Name	Type of Snake	Length
Sherman	Kenyan Sand Boa	$1\frac{1}{4}$ feet
Thomas	Ball Python	$3\frac{3}{4}$ feet
Sam	Blood Python	$6\frac{1}{4}$ feet

For numbers 15a–15d, select True or False for the statement.

- 15a. Thomas is 3 times as long as Sherman. ☒ True ☐ False
 15b. Thomas is 2 times as long as Sherman. ☐ True ☒ False
 15c. Sam is 5 times as long as Sherman. ☒ True ☐ False
 15d. Sam is 2 times as long as Thomas. ☐ True ☒ False

16. Violet used $1\frac{3}{4}$ gallons of paint on her kitchen walls. She used 4 times as much paint for her living room and bedroom walls. How much paint did Violet use for the living room and bedroom walls?

_____ gallons

17. Maddie made a batch of popcorn balls. She used $1\frac{1}{4}$ cups of raisins. She used 5 times as much popcorn.

Part A

Draw a model to show the problem.

popcorn	$1\frac{1}{4}$	$1\frac{1}{4}$	$1\frac{1}{4}$	$1\frac{1}{4}$	$1\frac{1}{4}$
raisins	$1\frac{1}{4}$				

Part B

Use your model to write an equation. Then solve the equation to find the amount of popcorn Maddie needs.

$$r = 5 \times 1\frac{1}{4} = 5 \times \frac{5}{4} = \frac{25}{4} = 6\frac{1}{4}$$

So, Maddie needs $6\frac{1}{4}$ cups of popcorn.



Name _____

18. Mrs. McGlashan is making paint for her class. She needs $\frac{3}{4}$ cup of warm water for each batch.

Part A

Mrs. McGlashan has a 1-cup measure that has no other markings. Can she make 8 batches of paint using only the 1-cup measure? Describe two ways you can find the answer.

Yes; possible explanation: she needs $8 \times \frac{3}{4}$ cups of water. I can use a number line to make 8 jumps of $\frac{3}{4}$. The last jump ends at $\frac{24}{4}$ or 6. I could also list the first 8 multiples of $\frac{3}{4}$: $\frac{3}{4}, \frac{6}{4}, \frac{9}{4}, \frac{12}{4}, \frac{15}{4}, \frac{18}{4}, \frac{21}{4}, \frac{24}{4}$. The sixth multiple is $\frac{24}{4}$, which is 6 whole cups. She can use the 1-cup measure 6 times to make 8 batches.

Part B

The paint recipe also calls for $\frac{1}{4}$ cup of food coloring. Tyler says Mrs. McGlashan will also need 6 cups of food coloring. Do you agree or disagree? Explain.

I disagree; possible explanation: $8 \times \frac{1}{4} = \frac{8}{4}$ or 2. She needs 2 cups of food coloring, not 6.

19. Sandi buys some fabric to make a quilt. She needs $\frac{1}{6}$ yard of each type of fabric. She has 7 different types of fabrics to make her design. Use the following equation. Write the number in the box to make the statement true.

$$\frac{7}{6} = \boxed{7} \times \frac{1}{6}$$

20. Mrs. Tokala uses $\frac{9}{10}$ of a can of coffee beans each week. How many cans of coffee beans does Mrs. Tokala use in 6 weeks? Write your answer two different ways.

Mrs. Tokala uses $\frac{54}{10}$ or $5\frac{4}{10}$ cans of coffee beans.

21. Alma is making 3 batches of tortillas. Each batch needs $\frac{3}{4}$ cup of water. She only has a $\frac{1}{4}$ -cup measure. How many times must Alma measure $\frac{1}{4}$ cup of water to have enough for all of the tortillas?

9 times



Chapter 8

Dollar Days

Mr. Asfour owns a small grocery store. The store is very popular for its fresh fruit and vegetables. On Tuesdays, he offers special deals for \$1.00.

Only \$1.00	Tuesday DOLLAR DAYS!	Only \$1.00
Apples — $\frac{3}{4}$ lb	Oranges — $\frac{1}{4}$ lb	Peaches — $\frac{2}{3}$ lb
Pears — $\frac{3}{8}$ lb	Bananas — $\frac{1}{2}$ lb	Peppers — $\frac{1}{4}$ lb
Limes — $\frac{1}{2}$ lb	Peanuts — $\frac{3}{10}$ lb	Lemons — $\frac{7}{8}$ lb

1. Elaine bought \$4 worth of apples and \$3 worth of lemons. Did her grocery bag weigh more than or less than $5\frac{1}{4}$ pounds? Use a model to support your answer.

$$\frac{4}{1} \cdot \frac{3}{4} = 3 \text{ apples} \quad \frac{3}{1} \cdot \frac{7}{8} = 2\frac{5}{8} = \text{lemons}$$

the bag weighs more than 5 1/4 lbs

2. Deshi paid \$5.00 for two different fruits. His grocery bag weighed between $1\frac{1}{2}$ and $2\frac{1}{2}$ pounds. Which combinations of fruit could he have purchased? Show your work.

☒ \$3 worth of pears and \$2 worth of apples

☐ \$4 worth of pears and \$1 worth of apples

☐ \$2 worth of pears and \$3 worth of apples

$$\begin{aligned} \frac{5}{1} \cdot \frac{3}{8} &= 1\frac{5}{8} = 1\frac{6}{8} \\ \frac{4}{1} \cdot \frac{3}{4} &= 3 \\ \frac{3}{1} \cdot \frac{7}{8} &= 2\frac{5}{8} \end{aligned}$$

1 5/8 + 3 = 4 5/8

1 5/8 + 2 5/8 = 4

3 + 2 5/8 = 5 5/8

3. Mrs. Nazari bought $2\frac{1}{4}$ pounds of apples, $1\frac{3}{4}$ pounds of peaches, and $1\frac{1}{2}$ pounds of bananas. She paid with a \$20 bill. How much change did she receive? Show your work.

$$\begin{aligned} 2\frac{1}{4} &= \frac{9}{4} \cdot \frac{3}{4} = \frac{27}{16} = 1\frac{11}{16} \text{ apples} \\ \text{peaches } \frac{8}{5} \cdot \frac{2}{5} &= \frac{16}{25} = \frac{4}{5} \\ \text{bananas } \frac{6}{5} \cdot \frac{1}{5} &= \frac{6}{25} \end{aligned}$$

$$\begin{array}{r} 19 \\ +19 \\ \hline 38 \\ -20 \\ \hline 18 \end{array}$$

her bag was lighter than 4 lbs

4. Ming paid \$8 for every item except peppers. Was her bag lighter than or heavier than 4 pounds? Show the addition using as few steps as you can.

$$\begin{aligned} \frac{4}{5} \cdot \frac{8}{10} &= \frac{32}{50} = \frac{16}{25} \\ \frac{1}{5} \cdot \frac{2}{10} &= \frac{2}{50} = \frac{1}{25} \\ \frac{2}{5} \cdot \frac{4}{10} &= \frac{8}{25} \\ \frac{3}{10} &= \frac{6}{20} \\ \frac{17}{10} &= \frac{34}{20} \\ \frac{34}{20} + \frac{16}{25} + \frac{1}{25} + \frac{8}{25} &= \frac{34}{20} + \frac{25}{25} = \frac{34}{20} + \frac{10}{20} = \frac{44}{20} = 2\frac{11}{10} = 3\frac{1}{10} \end{aligned}$$

her bag was lighter than 4 lbs

Chapter 8

Name _____

Dollar Days

Mr. Asfour owns a small grocery store. The store is very popular for its fresh fruit and vegetables. On Tuesdays, he offers special deals for \$1.00.

Only \$1.00	Tuesday DOLLAR DAYS!	Only \$1.00
Apples — $\frac{3}{4}$ lb	Oranges — $\frac{1}{4}$ lb	Peaches — $\frac{2}{3}$ lb
Pears — $\frac{3}{8}$ lb	Bananas — $\frac{1}{3}$ lb	Peppers — $\frac{4}{5}$ lb
Limes — $\frac{4}{5}$ lb	Peanuts — $\frac{3}{10}$ lb	Lemons — $\frac{7}{8}$ lb

1. Elaine bought \$4 worth of apples and \$3 worth of lemons. Did her grocery bag weigh more than or less than $5\frac{1}{4}$ pounds? Use a model to support your answer.

$3 \times 2 = 5 + \frac{5}{8} = 5\frac{5}{8}$
 her bag weighed $7\frac{1}{8}$
 more than $5\frac{1}{4}$ pounds.

$2\frac{7}{8} - 1\frac{10}{16} = 1\frac{14}{16} - 1\frac{10}{16} = \frac{4}{16} = \frac{1}{4}$
 $\frac{3}{4} \times \frac{4}{1} = \frac{3}{1} = 3$

2. Deshi paid \$5.00 for two different fruits. His grocery bag weighed between $1\frac{1}{2}$ and $2\frac{1}{2}$ pounds. Which combinations of fruit could he have purchased? Show your work.

_____ \$3 worth of pears and \$2 worth of apples
☒ \$4 worth of pears and \$1 worth of apples
 _____ \$2 worth of pears and \$3 worth of apples

$4 \times \frac{3}{8} = 1\frac{3}{2} = 1\frac{6}{4} = 1\frac{3}{2}$
 $1 \times \frac{3}{4} = \frac{3}{4}$

$1\frac{3}{2} + \frac{3}{4} = 1\frac{3}{2} + \frac{3}{4} = 1\frac{6}{4} + \frac{3}{4} = 1\frac{9}{4} = 2\frac{1}{4}$

3. Mrs. Nazari bought $2\frac{1}{4}$ pounds of apples, $1\frac{3}{8}$ pounds of peaches, and $1\frac{1}{2}$ pounds of bananas. She paid with a \$20 bill. How much change did she receive? Show your work.

$2\frac{1}{4} = 2.25$
 $1\frac{3}{8} = 1.375$
 $1\frac{1}{2} = 1.5$
 $2.25 + 1.375 + 1.5 = 5.125$
 $20 - 5.125 = 14.875$
 $\$14.88$

apples = 3 dollars
 bananas = 6 dollars
 peaches = 4 dollars

4. Ming paid \$8 for every item except peppers. Was her bag lighter than or heavier than 4 pounds? Show the addition using as few steps as you can.

lighter
 $\frac{9}{8} + \frac{2}{8} + \frac{3}{8} + \frac{7}{8} = \frac{21}{8} = 2\frac{5}{8} = 2\frac{1}{4}$

$\frac{8}{10} + \frac{2}{10} + \frac{4}{10} + \frac{3}{10} = \frac{17}{10} = 1\frac{7}{10}$

$3 + (5\frac{1}{2} + 1\frac{1}{2}) = 3 + 7 = 10$

Chapter 8

Dollar Days

Mr. Asfour owns a small grocery store. The store is very popular for its fresh fruit and vegetables. On Tuesdays, he offers special deals for \$1.00.

Only \$1.00	Tuesday DOLLAR DAYS!	Only \$1.00
Apples — $\frac{3}{4}$ lb	Oranges — $\frac{1}{4}$ lb	Peaches — $\frac{3}{8}$ lb.
Pears — $\frac{3}{8}$ lb	Bananas — $\frac{1}{8}$ lb	Peppers — $\frac{4}{8}$ lb
Limes — $\frac{4}{8}$ lb	Peanuts — $\frac{3}{10}$ lb	Lemons — $\frac{7}{8}$ lb

1. Elaine bought \$4 worth of apples and \$3 worth of lemons. Did her grocery bag weigh more than or less than $5\frac{1}{8}$ pounds? Use a model to support your answer.

$$\begin{array}{r} 7 \times \frac{3}{8} = 3 \\ \frac{21}{8} \times \frac{3}{1} = \frac{63}{8} = 7 \frac{7}{8} \end{array}$$

Her bag weighed more

2. Deshi paid \$5.00 for two different fruits. His grocery bag weighed between $1\frac{1}{2}$ and $2\frac{1}{2}$ pounds. Which combinations of fruit could he have purchased? Show your work.

$$\begin{array}{l} 1\frac{1}{2} \times \frac{3}{8} = \frac{9}{8} = 1\frac{1}{8} \\ 1\frac{1}{2} \times \frac{4}{8} = \frac{6}{4} = 1\frac{1}{2} \\ 1\frac{1}{2} \times \frac{7}{8} = \frac{21}{8} = 2\frac{5}{8} \end{array}$$

3. Mrs. Nazari bought $2\frac{1}{5}$ pounds of apples, $1\frac{3}{5}$ pounds of peaches, and $1\frac{1}{5}$ pounds of bananas. She paid with a \$20 bill. How much change did she receive? Show your work.

$$\begin{array}{r} \frac{2}{5} + \frac{2}{5} + \frac{2}{5} + \frac{2}{5} = \frac{8}{5} = 1\frac{3}{5} \\ \$1 + \$1 + \$1 + \$1 = \$4 \\ \text{bananas } \$1 + \$1 + \$1 + \$1 = \$4 \\ \frac{8}{5} + 4 + 4 = \frac{8}{5} + \frac{20}{5} + \frac{20}{5} = \frac{48}{5} = 9\frac{3}{5} \\ 20 - 9\frac{3}{5} = 10\frac{2}{5} = 10\frac{4}{10} = 10\frac{2}{5} \end{array}$$

4. Ming paid \$8 for every item except peppers. Was her bag lighter than or heavier than 4 pounds? Show the addition using as few steps as you can.

$$8 \times 4 = 32$$

heavier she bought a lot

Chapter 8

Name _____

Dollar Days

Mr. Asfour owns a small grocery store. The store is very popular for its fresh fruit and vegetables. On Tuesdays, he offers special deals for \$1.00.

Only \$1.00	Tuesday DOLLAR DAYS!	Only \$1.00
Apples — $\frac{3}{4}$ lb	Oranges — $\frac{1}{4}$ lb	Peaches — $\frac{2}{3}$ lb
Pears — $\frac{3}{8}$ lb	Bananas — $\frac{1}{3}$ lb	Peppers — $\frac{4}{8}$ lb
Limes — $\frac{4}{5}$ lb	Peanuts — $\frac{3}{10}$ lb	Lemons — $\frac{7}{8}$ lb

1. Elaine bought \$4 worth of apples and \$3 worth of lemons. Did her grocery bag weigh more than or less than $5\frac{1}{4}$ pounds? Use a model to support your answer.

$$\frac{4 \times 3}{7} = 7 \text{ more than } 5\frac{1}{4}$$

2. Deshi paid \$5.00 for two different fruits. His grocery bag weighed between $1\frac{1}{2}$ and $2\frac{1}{2}$ pounds. Which combinations of fruit could he have purchased? Show your work.

$$\begin{array}{l} \$5 - \$3 \text{ worth of pears and } \$2 \text{ worth of apples} \\ \$5 - \$4 \text{ worth of pears and } \$1 \text{ worth of apples} \\ \$5 - \$2 \text{ worth of pears and } \$3 \text{ worth of apples} \end{array}$$

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3. Mrs. Nazari bought $2\frac{1}{4}$ pounds of apples, $1\frac{3}{4}$ pounds of peaches, and $1\frac{1}{2}$ pounds of bananas. She paid with a \$20 bill. How much change did she receive? Show your work.

$$\begin{array}{r} \$20 \\ - \$5 \\ \hline \$15 \end{array}$$

2 1 1 1

3 1 2

4. Ming paid \$8 for every item except peppers. Was her bag lighter than or heavier than 4 pounds? Show the addition using as few steps as you can.

$$8 \text{ is heavier than } 4$$

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Page 1

1. Select a number shown by the model. Mark all that apply.

6.1

16

$\frac{60}{10}$

1.6

$\frac{16}{10}$

$\frac{16}{10}$

2. Ryan sold a jigsaw puzzle at a yard sale for three dollars and five cents. Which names this amount? Mark all that apply.

☒ A 35.0

☒ B $3\frac{5}{100}$

☒ C \$3.05

☐ D 3.05

☐ E $3\frac{5}{10}$

☐ F $\frac{305}{10}$

3. For numbers 3a–3e, select True or False for the statement.

3a. 0.2 is equivalent to $\frac{2}{100}$. ☐ True ☒ False

3b. $\frac{1}{10}$ is equivalent to 0.10. ☒ True ☐ False

3c. $\frac{70}{100}$ is equivalent to $\frac{7}{10}$. ☒ True ☐ False

3d. 0.60 is equivalent to $\frac{6}{100}$. ☐ True ☒ False

3e. 0.3 is equivalent to 0.30. ☒ True ☐ False

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4. After selling some lemonade and cookies, Vivian and her brother Gil had 7 one-dollar bills, 8 quarters, and 6 dimes. They agreed to divide the money equally.

Part A

What is the total amount of money that Vivian and Gil earned? Explain.

\$9.60; possible explanation: I counted the one-dollar bills to get \$7.00. Then I counted on 8 quarters: \$7.25, \$7.50, \$7.75, \$8.00, \$8.25, \$8.50, \$8.75, \$9.00. Then I counted on 6 dimes: \$9.10, \$9.20, \$9.30, \$9.40, \$9.50, \$9.60.

Part B

Gil said that he and Vivian cannot get equal amounts of money because 7 one-dollar bills cannot be divided evenly. Do you agree with Gil? Explain.

No; possible explanation: first, they share the quarters and dimes and get 4 quarters and 3 dimes each. Then they can change the 7 dollar bills into quarters. 1 dollar = 4 quarters, so 7 dollars = 7×4 or 28 quarters. They can each get 14 quarters. So, each person has a total of 18 quarters and 3 dimes. $\$4.50 + \$0.30 = \$4.80$.

5. Trisha walked $\frac{9}{10}$ of a mile to school. Shade the model. Then write the decimal to show how far Trisha walked.

Trisha walked 0.9 mile to school.

6. Cora paid $\frac{65}{100}$ of a dollar to buy a postcard from Grand Canyon National park in Arizona. What is $\frac{65}{100}$ written as a decimal in terms of dollars?

0.65

7. Chaz needs \$4.77 for new batteries. He has \$2.80. He needs \$1.97 more to have enough money for the batteries.

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8. Matthew walks $\frac{4}{10}$ mile to Zach's house. A fraction in hundredths equal to $\frac{4}{10}$ is $\frac{40}{100}$.

9. Write a decimal in tenths that is **less** than 3.81 but **greater** than 3.0.

Possible answers: 3.8, 3.7, 3.6, 3.5, 3.4, 3.3, 3.2, or 3.1

10. Maya and three of her friends have three quarters and one nickel to spend.

Part A

If Maya and her friends share the money equally, how much will each person get? Explain how you found your answer.

\$0.20; possible explanation: three quarters and one nickel are equal to \$0.80. I can think of \$0.80 as 8 dimes. When I divide 8 dimes equally, each person will receive 2 dimes or \$0.20.

Part B

Maya says that each person will receive $\frac{2}{10}$ of the money. Do you agree? Explain.

No; possible explanation: each person receives \$0.20, which is $\frac{2}{10}$ of a dollar, not $\frac{2}{10}$ of the money. Since there are 4 people who share the money equally, each person will receive $\frac{1}{4}$ of the money.

11. Shade the model to show $1\frac{68}{100}$. Then write the mixed number in decimal form.

1.68

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12. Jen is making a recipe for pancakes. A recipe calls for $\frac{4}{10}$ kilogram flour and $\frac{12}{100}$ kilogram sugar.

Part A

If Jen measures correctly and combines the two amounts, how much flour and sugar will she have? Show your work.

$\frac{52}{100}$ kilogram; $\frac{4}{10} = \frac{40}{100}$; $\frac{40}{100} + \frac{12}{100} = \frac{52}{100}$

Part B

How can you write your answer as a decimal?

0.52 kilogram

13. The U.S. Senate in Washington D.C. has 100 elected members. Last year, 30 senators ran for re-election. What decimal is equivalent to $\frac{30}{100}$?

0.3 or 0.30

14. Complete the table.

\$ Bills and Coins	Money Amount	Fraction or Mixed Number	Decimal
4 pennies	\$0.04	$\frac{4}{100}$	0.04
Possible answer: 2 quarters	\$0.50	$\frac{5}{10}$ or $\frac{50}{100}$	0.50
Possible answer: 6 dimes	\$0.60	$\frac{60}{100}$ or $\frac{6}{10}$	0.60
2 \$1 bills 8 pennies	\$2.08	$2\frac{8}{100}$	2.08

15. The point on the number line shows the number of miles Emily rides her bike. Write the decimal that correctly names the point.

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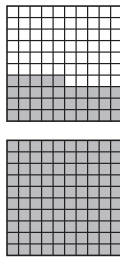
Chapter 9 Test

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16. Julian is building a birdhouse. The house is $\frac{21}{100}$ meter high without the roof. The roof is $\frac{3}{10}$ meter high. What is the height of the birdhouse with the roof? Choose a number from each column to complete an equation to solve.

$$\frac{3}{10} + \frac{21}{100} = \frac{30}{100} + \frac{21}{100} = \frac{51}{100}$$

17. Jack drew a model to represent the number of miles from his home to the park. What decimal represents the part of the model that is shaded?



represents 1.35

19. For numbers 18a–18f, select True or False for the inequality.
- 18a. $0.2 > 0.25$ ☐ True ☒ False
 - 18b. $0.32 < 0.65$ ☒ True ☐ False
 - 18c. $4.8 > 4.08$ ☒ True ☐ False
 - 18d. $0.13 = 0.31$ ☐ True ☒ False
 - 18e. $\$4.16 > \0.16 ☒ True ☐ False
 - 18f. $3.4 < 3.40$ ☐ True ☒ False

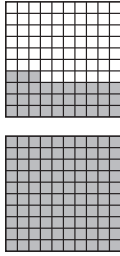
19. Fill in the number to find the sum.

$$\frac{2}{10} + \frac{30}{100} = \frac{50}{100}$$



Name _____

20. Charlie's model shows the number of hours he exercised yesterday. Which fraction, mixed number, or decimal does the model show? Mark all that apply.



- ☒ 1.33
- ☒ $1\frac{33}{100}$
- ☐ 133
- ☐ $1\frac{3}{100}$
- ☐ 13.3
- ☐ $1\frac{33}{10}$

21. Gene lives 0.6 miles from school. Kate lives 0.51 miles from school.

Part A

Who lives closer to school? Explain.

Kate; possible explanation: 0.6 is 6 tenths and 0.51 is 5 tenths 1 hundredth. Compare the tenths, since 6 tenths > 5 tenths, Gene lives farther from the school, so Kate lives closer.

Part B

How can you write each distance as a fraction? Explain.

Possible answers: $0.6 = \frac{6}{10}$ and $0.51 = \frac{51}{100}$; possible explanation: 0.6 is the same as 6 tenths and 0.51 is the same as 51 hundredths.

Part C

Gene is walking to school to get a book he forgot. Then he is walking to Kate's house. Will he walk more than a mile or less than a mile? Explain.

More than a mile; possible explanation: $\frac{6}{10} > \frac{5}{10}$ or $\frac{1}{2}$ and $\frac{51}{100} > \frac{50}{100}$ or $\frac{1}{2}$. So $\frac{6}{10} + \frac{51}{100} > \frac{1}{2} + \frac{1}{2} = 1$, you know that $\frac{6}{10} + \frac{51}{100} > 1$.



Chapter 9

Taxi

Taxis downtown charge a flat fee of \$2.50, plus a state tax of \$0.50, plus \$0.50 for each $\frac{1}{5}$ mile they travel with a passenger.

1. Explain how you could write $\frac{1}{5}$ mile as a fraction with 10 in the denominator, a fraction with 100 in the denominator, and as a decimal.

Multiply $\frac{1}{5}$ by $\frac{2}{2}$ to get $\frac{2}{10}$.
 Multiply $\frac{1}{5}$ by $\frac{20}{20}$ to get $\frac{20}{100}$.
 $\frac{1}{5} = \frac{2}{10} = \frac{20}{100} = .2$

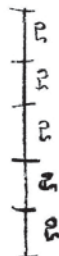
$$1 \text{ mile} = \$2.50$$

2. Travis took a taxicab from his office to a meeting on the other side of town. The cab ride cost \$8.50, which includes a \$2.00 tip. In decimal form, how far is it from his office to the meeting? Show your work.

$$\begin{array}{r} 8.50 \\ - 2.00 \text{ tip} \\ \hline 6.50 \\ - 3.00 \text{ fee + tax} \\ \hline 3.50 \end{array}$$

$$\$3.50 = \$0.50 \times 7 \text{ and}$$

$$7 \times 0.20 \text{ miles} = 1.4 \text{ miles}$$



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3. Mr. and Mrs. Rubin dropped coins when their taxicab hit a pothole. Mrs. Rubin lost 2 quarters, 3 nickels, and 17 pennies. Mr. Rubin lost 6 dimes.

a. Write the total amount of money Mrs. Rubin lost as a decimal and as a fraction. Show your work.

$$\begin{array}{r} 100 \\ - 82 \\ \hline 18 \end{array}$$

50 5 00000000 17

$$\frac{18}{100} = \frac{9}{50}$$

- b. Did the Rubins lose more money in quarters or dimes? Compare the decimal amounts using $>$, $<$, or $=$. Explain your answer.

quarters 50¢ dimes 60¢
 Rubins lost more money in dimes.

- c. What is the total value of the dimes and pennies the Rubins lost? Express your answer as a fraction. Show your work.

$$\begin{array}{r} 21 \\ 100 \\ + 17 \\ \hline 38 \end{array}$$

$$\begin{array}{r} 11 \\ - 3 \text{ tip} \\ \hline 8 \\ - 3 \text{ flat fee} \\ \hline 5 \end{array}$$

Keisha

$$\begin{array}{r} 9 \text{ subtract} \\ - 2 \text{ tip} \\ \hline 7 \end{array}$$

$$\begin{array}{r} 7 \\ - 3 \text{ flat fee} \\ \hline 4 \end{array}$$

Keisha took Mr. Mamood's cab from her apartment building to a dentist appointment across town. She paid \$9 for her ride, which included a \$2 tip. Mr. Mamood then picked up Neil at the same location and took him to his office. Neil paid \$11, which included a \$3 tip. What was the total distance Mr. Mamood drove Keisha and Neil? Give your answer as a fraction and as a decimal. Explain your mathematical thinking.

Keisha $\frac{8}{5}$ or 1.6 miles
 I subtract tip/fees.

Neil $\frac{10}{5}$ or 2 miles

2. Then I added the two

$$\begin{array}{r} 1.6 \\ + 2.0 \\ \hline 3.6 \end{array}$$

$$\begin{array}{r} 3.6 \\ - 3.0 \\ \hline 0.6 \end{array}$$

$$\begin{array}{r} 3.6 \\ - 3.0 \\ \hline 0.6 \end{array}$$

$$\frac{10}{5} = 2$$

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Chapter 9

Name _____

Taxi

Taxis downtown charge a flat fee of \$2.50, plus a state tax of \$0.50, plus \$0.50 for each $\frac{1}{5}$ mile they travel with a passenger.

1. Explain how you could write $\frac{1}{5}$ mile as a fraction with 10 in the denominator, a fraction with 100 in the denominator, and as a decimal.

$$\frac{1}{5} = \frac{2}{10} = \frac{20}{100} = .2 = .20$$

2. Travis took a taxicab from his office to a meeting on the other side of town. The cab ride cost \$8.50, which includes a \$2.00 tip. In decimal form, how far is it from his office to the meeting?

$$\begin{array}{r} 8.50 \\ - 2.00 \\ \hline 6.50 \\ - 3.00 \\ \hline 3.50 \end{array}$$

1.4 miles

I subtracted the fees and the flat fees then I took the amount they paid the taxi and saw it was 7 groups of 50 cents. I multiplied 7 by $\frac{1}{5}$ to find total miles.

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3. Mr. and Mrs. Rubin dropped coins when their taxicab hit a pothole. Mrs. Rubin lost 2 quarters, 3 nickels, and 17 pennies. Mr. Rubin lost 6 dimes.

- a. Write the total amount of money Mrs. Rubin lost as a decimal and as a fraction. Show your work.

$$\begin{array}{r} 72 \\ 50 \\ 15 \\ 17 \\ \hline 154 \end{array}$$

- b. Did the Rubins lose more money in quarters or dimes? Compare the decimal amounts using $>$, $<$, or $=$. Explain your answer.

dimes $60 > 50$

- c. What is the total value of the dimes and pennies the Rubins lost? Express your answer as a fraction. Show your work.

$$\begin{array}{r} 77 \\ 100 \\ \hline 177 \end{array}$$

4. Keisha took Mr. Mamood's cab from her apartment building to a dentist appointment across town. She paid \$9 for her ride, which included a \$2 tip. Mr. Mamood then picked up Neil at the same location and took him to his office. Neil paid \$11, which included a \$3 tip. What was the total distance Mr. Mamood drove Keisha and Neil? Give your answer as a fraction and as a decimal. Explain your mathematical thinking.

$\frac{16}{5}$ miles

$11 + 2$ miles

3.6 total miles

subtract fees/tip

\$4 is 8 groups of 50.

divide by 5 to get miles.

$$\begin{array}{r} 9 \\ - 2 \\ \hline 7 \end{array}$$

$$\begin{array}{r} 11 \\ - 3 \\ \hline 8 \end{array}$$

$$\begin{array}{r} 8 \\ 5 \overline{) 40} \\ \underline{35} \\ 5 \end{array}$$

$$\begin{array}{r} 11 \\ - 3 \\ \hline 8 \end{array}$$

$$\begin{array}{r} 8 \\ 5 \overline{) 40} \\ \underline{35} \\ 5 \end{array}$$

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Chapter 9

Name _____

Taxi

Taxis downtown charge a flat fee of \$2.50, plus a state tax of \$0.50, plus \$0.50 for each $\frac{1}{5}$ mile they travel with a passenger.

1. Explain how you could write $\frac{1}{5}$ mile as a fraction with 10 in the denominator, a fraction with 100 in the denominator, and as a decimal.

$$\frac{1}{5} = \frac{2}{10} = \frac{20}{100} = 0.2$$

2. Travis took a taxi from his office to a meeting on the other side of town. The cab ride cost \$8.50, which includes a \$2.00 tip. In decimal form, how far is it from his office to the meeting? Show your work.

$$\$10.50 - \$2.00 = \$8.50$$

$$0.50$$

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3. Mr. and Mrs. Rubin dropped coins when their taxicab hit a pothole. Mrs. Rubin lost 2 quarters, 3 nickels, and 17 pennies. Mr. Rubin lost 6 dimes.

- a. Write the total amount of money Mrs. Rubin lost as a decimal and as a fraction. Show your work.

$$0.300 \frac{30}{100}$$

$$\begin{array}{r} 50 \\ -15 \\ \hline 35 \\ 35 \\ -17 \\ \hline 18 \end{array}$$

- b. Did the Rubins lose more money in quarters or dimes? Compare the decimal amounts using $>$, $<$, or $=$. Explain your answer.

0.50 < 0.60 dimes because
It's more than 50.

$$\begin{array}{r} 50 \\ +15 \\ \hline 65 \\ 65 \\ -10 \\ \hline 55 \\ 55 \\ +15 \\ \hline 70 \\ 70 \\ +17 \\ \hline 87 \end{array}$$

- c. What is the total value of the dimes and pennies the Rubins lost? Express your answer as a fraction. Show your work.

$$\frac{57}{100}$$

$$\frac{57}{100}$$

4. Keisha took Mr. Mamood's cab from her apartment building to a dentist appointment across town. She paid \$9 for her ride, which included a \$2 tip. Mr. Mamood then picked up Neil at the same location and took him to his office. Neil paid \$11, which included a \$3 tip. What was the total distance Mr. Mamood drove Keisha and Neil? Give your answer as a fraction and as a decimal. Explain your mathematical thinking.

He went $2\frac{1}{5}$ of a mile.

$$\frac{1}{5} + \frac{1}{5}$$

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Name _____ Fractions and Decimals

CRITICAL AREA

Party Time!

Stefan and some friends organized a party for the people in his building. The party was held at the park across the street.

- Mr. Hoya brought 5 watermelons from his grocery store. The watermelons weighed $8\frac{1}{2}$ pounds, $9\frac{1}{4}$ pounds, $8\frac{3}{8}$ pounds, $9\frac{3}{4}$ pounds, and $10\frac{3}{4}$ pounds. At the party, 153 people each ate a $\frac{1}{4}$ -pound serving of watermelon. Was the amount of leftover watermelon less than or greater than $8\frac{1}{2}$ pounds? Explain how to solve the problem. Then solve it.

The amount left over was equal to $8\frac{1}{2}$ lbs. I have to make the denominators the same. (8). Then I have to convert fractions to find the total weight of melons. I had to subtract $4\frac{1}{2}$ from the total of watermelons and compare it to $8\frac{1}{2}$.

I have to subtract $4\frac{1}{2}$ from the total of watermelons and compare it to $8\frac{1}{2}$.

I have to subtract $4\frac{1}{2}$ from the total of watermelons and compare it to $8\frac{1}{2}$.

Then I have to multiply the number of people by $\frac{1}{4}$ to get how much they ate.

He cut the pepperoni into $\frac{1}{12}$ pound slices. A skateboarder bumped into his table and $2\frac{1}{12}$ pound of the pepperoni fell on the ground and was eaten by 3 dogs. Does Mr. Carlucci have enough pepperoni left to make 74 sandwiches if he puts one slice on each sandwich? By how much is he over or under the amount of pepperoni he needs? Show your work.

6x12 slices = 72

8 $\frac{3}{4}$ = $8\frac{9}{12}$
 $- 2\frac{1}{12}$ = $2\frac{1}{12}$

6 $\frac{9}{12}$ = $6\frac{9}{12}$
 $- 2\frac{1}{12}$ = $4\frac{8}{12}$

6 $\frac{9}{12}$ = $6\frac{9}{12}$
 $- 2\frac{1}{12}$ = $4\frac{8}{12}$

6 $\frac{9}{12}$ = $6\frac{9}{12}$
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 $- 2\frac{1}{12}$ = $4\frac{8}{12}$

6 $\frac{9}{12}$ = $6\frac{9}{12}$
 $- 2\frac{1}{12}$ = $4\frac{8}{12}$

6 $\frac{9}{12}$

How many $\frac{1}{4}$ in $2\frac{7}{8}$? $\leftarrow \frac{1 = \frac{1}{4}}{1 = \frac{2}{4}}$ $\frac{10}{4} = 2\frac{1}{2}$ $\frac{10}{4} \times 10 \times 8 = 80$ cups

3. The Salomans offered to be in charge of drinks for the party. In addition to other beverages, they brought 4 bags of coffee that each held $2\frac{1}{2}$ pounds. When brewed, $\frac{1}{4}$ pound of coffee made 8 cups of coffee. The Salomons brewed and served 296 cups of coffee. Was any coffee left over? If so, how much coffee was left? Show your work.

$4 \times 2\frac{1}{2} = 8 \frac{\cancel{4}}{2} = 10$ pounds
 $\begin{array}{r} 10 \text{ lbs} \\ \times 4 \\ \hline 40 \text{ lbs of coffee} \\ \times 8 \text{ cups} \\ \hline 320 \text{ cups} \end{array}$

$2\frac{1}{4}$ cups of coffee left over.
 $8 \sqrt{24} = 3 \quad 3 \times \frac{1}{4} = \frac{3}{4}$ pounds of coffee left over.

4. Ramone tossed 1 quarter, 2 dimes, and 13 pennies in the wishing well at the party. What is the total amount of money as a fraction and as a decimal? Show your work.

$\begin{array}{r} 0.25 \\ + 0.20 \\ + 0.13 \\ \hline 0.58 \end{array}$ decimal

$\frac{58}{100} = \frac{29}{50}$ fraction

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$$9/8 - 3/8 = 5/8 \quad \checkmark$$

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3. The Salomans offered to be in charge of drinks for the party. In addition to other beverages, they brought 4 bags of coffee that each held $2\frac{1}{2}$ pounds. When brewed, $\frac{1}{4}$ pound of coffee made 8 cups of coffee. The Salomans brewed and served 296 cups of coffee. Was any coffee left over? If so, how much coffee was left? Show your work.

There was 24 cups left over.

$$4 \times 2\frac{1}{2} = 8 \times \frac{1}{2} = 10 \text{ pounds}$$

$$\begin{array}{r} 296 \\ - 240 \\ \hline 56 \end{array}$$

$$\begin{array}{r} 56 \\ \times 4 \\ \hline 224 \end{array}$$

4. Ramone tossed 1 quarter, 2 dimes, and 13 pennies in the wishing well at the party. What is the total amount of money as a fraction and as a decimal? Show your work.

$$\begin{array}{r} 0.25 \\ 0.20 \\ 0.13 \\ \hline 0.58 \end{array}$$

$$\frac{58}{100}$$

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Parties and Decimals

Name _____

CRITICAL AREA

Party Time!

Stefan and some friends organized a party for the people in his building. The party was held at the park across the street.

1. Mr. Hoya brought 5 watermelons from his grocery store. The watermelons weighed $8\frac{1}{4}$ pounds, $9\frac{1}{4}$ pounds, $8\frac{1}{4}$ pounds, $9\frac{1}{4}$ pounds, and $10\frac{1}{4}$ pounds. At the party, 153 people each ate a $\frac{1}{4}$ pound serving of watermelon. Was the amount of leftover watermelon less than or greater than $8\frac{1}{4}$ pounds? Explain how to solve the problem. Then solve it.

First you add up the numbers. It is $47\frac{1}{4}$ pounds of watermelon. It's more than $8\frac{1}{4}$. First I added then divided, then subtracted.

$$\begin{array}{r} 038\frac{1}{4} \\ 4153 \\ - 32 \\ \hline 4121 \end{array}$$

$$\begin{array}{r} 8\frac{1}{4} \\ 9\frac{1}{4} \\ 8\frac{1}{4} \\ 9\frac{1}{4} \\ 10\frac{1}{4} \\ \hline 47\frac{1}{4} \end{array}$$

2. Mr. Carlucci brought $8\frac{3}{4}$ pound pepperoni for large sandwiches. He cut the pepperoni into $\frac{1}{12}$ pound slices. A skateboarder bumped into his table and $2\frac{7}{12}$ pound of the pepperoni fell on the ground and was eaten by 3 dogs. Does Mr. Carlucci have enough pepperoni left to make 74 sandwiches if he puts one slice on each sandwich? By how much is he over or under the amount of pepperoni he needs? Show your work.

Yes he does but he won't have any left over. because the answer is 74.

$$\begin{array}{r} 8\frac{3}{4} = 8\frac{9}{12} \\ - 2\frac{7}{12} \\ \hline 6\frac{2}{12} \end{array}$$

$$\begin{array}{r} 6 \times 12 = 72 \\ \frac{2}{12} \\ \hline 74 \end{array}$$

5. At the party there were 380 places to sit, including the benches in the park and the chairs people brought to the party. Of those seats, 0.45 of them were used by women and girls. How many seats were used by men and boys? Is that fraction of the total number of seats less than or greater than $\frac{3}{5}$? Explain your mathematical thinking.

$$\begin{array}{r} 380 \\ -171 \\ \hline 209 \end{array}$$

$$\frac{45}{100} \times 380 = \frac{17100}{100} = 171$$

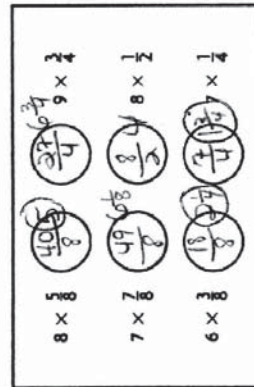
$$209 \text{ men}$$

$$380 \div 5 = 76$$

$$\frac{3}{5} \times \frac{76}{76} = \frac{228}{76}$$

$$\frac{209}{380} < \frac{228}{380} \text{ Boys seats less than } \frac{3}{5}$$

6. Some of the neighbors played a penny game. Players toss a penny in a hole and earn that number of points. Each player tosses 3 pennies. The scores from each penny that goes in a hole are added for a final score. Is it possible to get a score of 9? If so, how could it happen?



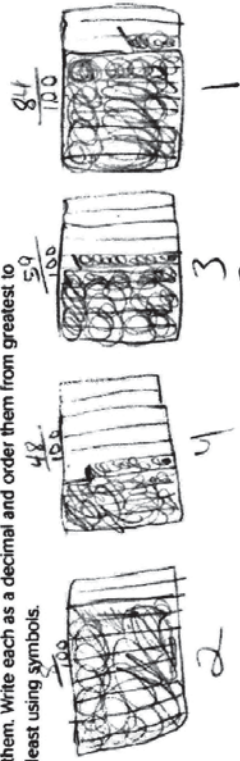
yes

$$8 \times \frac{1}{8} + 6 \times \frac{1}{8} + 7 \times \frac{1}{4}$$

$$5 + 2\frac{1}{4} + 1\frac{3}{4}$$

$$5 + 4 = 9$$

7. Stefan and his friends used four tables for all the dishes the guests brought to the party. The tables were $2\frac{8}{10}$ meters long, 2.48 meters long, $2\frac{59}{100}$ meters long, and 2.84 meters long. Demonstrate one way to model these numbers to compare them. Write each as a decimal and order them from greatest to least using symbols.



$$2.84 > 2.80 > 2.59 > 2.48$$

8. One of the neighborhood apartment buildings has 8 floors. During the party, the elevator in the building was busy taking people up and down, to the party and back home. The elevator started on the ground floor. It went up $\frac{3}{8}$ of the building height, up another $\frac{2}{8}$ of the building, down $\frac{1}{8}$, down $\frac{1}{8}$, and up $\frac{1}{8}$. What floor is the elevator on now? What move will put it back on the ground floor?

The elevator is on floor 8. Down 8.
Will make it to the ground floor.

$$\begin{array}{r} 0 \\ 3 + 2.5 \\ - 1 \\ \hline + 6 \\ 7 \\ - 1 \\ \hline 8 \end{array}$$

Name _____

Fractions and Decimals

CRITICAL AREA**Party Time!**

Stefan and some friends organized a party for the people in his building. The party was held at the park across the street.

1. Mr. Hoya brought 5 watermelons from his grocery store. The watermelons weighed $8\frac{1}{4}$ pounds, $9\frac{1}{4}$ pounds, $8\frac{7}{8}$ pounds, $9\frac{5}{8}$ pounds, and $10\frac{3}{4}$ pounds. At the party, 153 people each ate a $\frac{1}{4}$ -pound serving of watermelon. Was the amount of leftover watermelon less than or greater than $8\frac{1}{2}$ pounds? Explain how to solve the problem. Then solve it.

Less because we added the whole numbers then we subtracted them we added and we got our answer

2. Mr. Carlucci brought $8\frac{3}{4}$ pound pepperoni for large sandwiches. He cut the pepperoni into $\frac{1}{12}$ pound slices. A skateboarder bumped into his table and $2\frac{7}{12}$ pound of the pepperoni fell on the ground and was eaten by 3 dogs. Does Mr. Carlucci have enough pepperoni left to make 74 sandwiches if he puts one slice on each sandwich? By how much is he over or under the amount of pepperoni he needs? Show your work.

$8\frac{3}{4} = 8\frac{9}{12}$ $6 \times 12 \text{ slices} = 72$
 $- 2\frac{7}{12} = 2\frac{7}{12}$
 does not have enough

3. The Salomons offered to be in charge of drinks for the party. In addition to other beverages, they brought 4 bags of coffee that each held $2\frac{1}{2}$ pounds. When brewed, $\frac{1}{4}$ pound of coffee made 8 cups of coffee. The Salomons brewed and served 296 cups of coffee. Was any coffee left over? If so, how much coffee was left? Show your work.

4 bags $4 \times 2\frac{1}{2} = 10$ pounds
 The were 34 cup left

4. Ramone tossed 1 quarter, 2 dimes, and 13 pennies in the wishing well at the party. What is the total amount of money as a fraction and as a decimal? Show your work.

0.25
 0.20
 0.13
 0.58
 $- 58$
 100

5. At the party there were 380 places to sit, including the benches in the park and the chairs people brought to the party. Of those seats, 0.45 of them were used by women and girls. How many seats were used by men and boys? Is that fraction of the total number of seats less than or greater than $\frac{2}{3}$? Explain your mathematical thinking.

$$\frac{45}{100} \times 380 = \frac{17,100}{100} = 171$$

$\frac{45}{100}$ is less than $\frac{2}{3}$

6. Some of the neighbors played a penny game. Players toss a penny in a hole and earn that number of points. Each player tosses 3 pennies. The scores from each penny that goes in a hole are added for a final score. Is it possible to get a score of 9? If so, how could it happen?

$8 \times \frac{5}{8}$	5	$(\frac{3}{4})$	$9 \times \frac{3}{4}$
$7 \times \frac{7}{8}$	$(\frac{6}{8})$	4	$8 \times \frac{1}{8}$
$6 \times \frac{3}{8}$	$(\frac{1}{4})$	$(\frac{2}{4})$	$7 \times \frac{1}{4}$

yes, because $5+4=9$ and it came out simple.

7. Stefan and his friends used four tables for all the dishes the guests brought to the party. The tables were $2\frac{8}{10}$ meters long, 2.48 meters long, $2\frac{59}{100}$ meters long, and 2.84 meters long. Demonstrate one way to model these numbers to compare them. Write each as a decimal and order them from greatest to least using symbols.

2.8
2.48
2.59
2.84
2.8
2.48
2.59
2.84

8. One of the neighborhood apartment buildings has 8 floors. During the party, the elevator in the building was busy taking people up and down, to the party and back home. The elevator started on the ground floor. It went up $\frac{3}{8}$ of the building height, up another $\frac{2}{8}$ of the building, down $\frac{1}{8}$, up $\frac{6}{8}$, down $\frac{3}{8}$, and up $\frac{1}{8}$. What floor is the elevator on now? What move will put it back on the ground floor?

8 because there is only eight floors.

0 + 3 + 2 + 4 + 6
+ 5 + 1 + 2
= 23

CRITICAL AREA

Name _____

Party Time!

Stefan and some friends organized a party for the people in his building. The party was held at the park across the street.

- Mr. Hoya brought 5 watermelons from his grocery store. The watermelons weighed $8\frac{1}{4}$ pounds, $9\frac{1}{4}$ pounds, $8\frac{7}{8}$ pounds, $9\frac{3}{8}$ pounds, and $10\frac{1}{2}$ pounds. At the party, 153 people each ate a $\frac{1}{4}$ -pound serving of watermelon. Was the amount of leftover watermelon less than or greater than $8\frac{1}{2}$ pounds? Explain how to solve the problem. Then solve it.

$$158 \text{ is what I go to by adding}$$

$$153 + 5 = 158$$

$$158$$

$$+ 5$$

$$\hline 153$$

- Mr. Carlucci brought $8\frac{3}{4}$ pound pepperoni for large sandwiches. He cut the pepperoni into $\frac{1}{12}$ pound slices. A skateboarder bumped into his table and $2\frac{1}{12}$ pound of the pepperoni fell on the ground and was eaten by 3 dogs. Does Mr. Carlucci have enough pepperoni left to make 74 sandwiches if he puts one slice on each sandwich? By how much is he over or under the amount of pepperoni he needs? Show your work.

$$74$$

$$3$$

- The Salomans offered to be in charge of drinks for the party. In addition to other beverages, they brought 4 bags of coffee that each held $2\frac{1}{2}$ pounds. When brewed, $\frac{1}{4}$ pound of coffee made 8 cups of coffee. The Salomans brewed and served 296 cups of coffee. Was any coffee left over? If so, how much coffee was left? Show your work.

$$296$$

$$+ 300$$

$$\hline 596$$

- Ramone tossed 1 quarter, 2 dimes, and 13 pennies in the wishing well at the party. What is the total amount of money as a fraction and as a decimal? Show your work.

$$58$$

$$+ 30$$

$$+ 15$$

$$+ 13$$

$$\hline 116$$

7. Stefan and his friends used four tables for all the dishes the guests brought to the party. The tables were $2\frac{3}{10}$ meters long, 2.48 meters long, $2\frac{59}{100}$ meters long, and 2.84 meters long. Demonstrate one way to model these numbers to compare them. Write each as a decimal and order them from greatest to least using symbols.

$$\begin{array}{r} 2.84 \\ + 2.60 \\ \hline 9.88 \end{array}$$

8. One of the neighborhood apartment buildings has 8 floors. During the party, the elevator in the building was busy taking people up and down, to the party and back home. The elevator started on the ground floor. It went up $\frac{3}{8}$ of the building height, up another $\frac{2}{8}$ of the building, down $\frac{3}{8}$, up $\frac{3}{8}$, down $\frac{3}{8}$, and up $\frac{1}{8}$. What floor is the elevator on now? What move will put it back on the ground floor?

12.8 I think because I added $\frac{3}{8} + \frac{2}{8}$
 $8 + 4.8$

5. At the party there were 380 places to sit, including the benches in the park and the chairs people brought to the party. Of those seats, 0.45 of them were used by women and girls. How many seats were used by men and boys? Is that fraction of the total number of seats less than or greater than $\frac{3}{4}$? Explain your mathematical thinking.

$$\begin{array}{r} 380 \\ + 35 \\ \hline 415 \end{array}$$

6. Some of the neighbors played a penny game. Players toss a penny in a hole and earn that number of points. Each player tosses 3 pennies. The scores from each penny that goes in a hole are added for a final score. Is it possible to get a score of 9? If so, how could it happen?

$8 \times \frac{1}{8}$	$9 \times \frac{3}{4}$
$7 \times \frac{7}{8}$	$8 \times \frac{1}{2}$
$6 \times \frac{3}{8}$	$7 \times \frac{1}{4}$

$6 \times \frac{3}{4} = 9 \times \frac{3}{4}$ is what I think

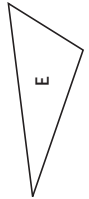
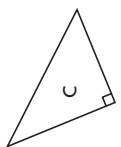
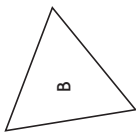
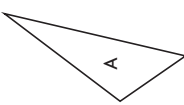
Chapter 10 Test
Page 1

Name _____

1. Tenley makes stained glass windows. She used this piece of stained glass in one of the windows. How many right angles does this piece of stained glass appear to have?

0 right angles

2. Write the letter of the triangle under its correct classification.



Acute Triangle	Obtuse Triangle	Right Triangle
B, F	A, E	C, D

3. Select the angles that identify an obtuse triangle. Mark all that apply.

☐ A right, acute, acute
☐ B obtuse, right, acute
☒ C acute, obtuse, acute
☐ D acute, acute, acute

Chapter Resources
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10-19

Chapter 10 Test

GO ON

Chapter 10 Test
Page 2

Name _____

4. Write the word that describes the part of Figure A written below.

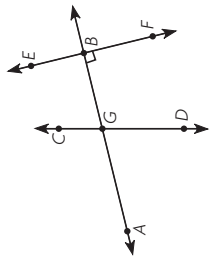
ray

line

line segment

acute angle

right angle


Figure A

$\overline{AG}$ line segment

$\angle GBF$ right angle

$\overleftrightarrow{EF}$ line

$\angle AGD$ acute angle

$\overrightarrow{GC}$ ray

5. What term best describes the figure shown below?

parallel lines

6. Debbie leaves for her trip to San Diego on the 13th day of February. Since February is the 2nd month, Debbie wrote the date as shown.

2/13

Debbie says all the numbers she wrote have line symmetry. Is she correct? Explain your thinking.

No; possible explanation: Debbie is incorrect. The number 2 does not have a line of symmetry because if it were cut out, there would be no way to fold it in half so that the two parts matched exactly.

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10-20

Chapter 10 Test

GO ON

Name _____

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Page 3

7. Jessica made a pennant that looks like a triangle. How can you classify the triangle based upon its angles?

The triangle is a(n) **right** triangle.

8. Choose the labels to make a true statement.

$\overrightarrow{GH}$
J
 $\overrightarrow{AB}$

is parallel to

$\overrightarrow{AB}$
 $\overrightarrow{CD}$
GH

9. Classify the figure. Select all that apply.

☒ quadrilateral
☒ rectangle
☐ parallelogram

☐ rhombus
☒ trapezoid
☐ square

10. Alison has a sticker that looks like a quadrilateral that has 2 pairs of parallel sides and no right angles. How can you classify the figure?

The quadrilateral is a **parallelogram, rhombus, trapezoid**

GO ON

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10-21

Chapter 10 Test

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Page 4

11. Match each figure with the correct number of lines of symmetry it has.

A

B

C

D

0 lines of symmetry

1 line of symmetry

2 lines of symmetry

More than 2 lines of symmetry

12. Martha used counters to make this pattern.

Use the counter shown to draw the missing part. ☐

13. Margaret drew the figure below. Draw a line of symmetry on Margaret's figure.

14. Write the word or words that best describe this figure.

line segment

15. How many acute angles does an acute triangle have?

An acute triangle has **3** acute angles.

GO ON

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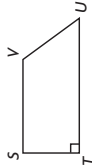
10-22

Chapter 10 Test

Name _____

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Page 5

16. Lisa drew a figure with two sides perpendicular. Write the pair of perpendicular sides. What figure is it?



ST is perpendicular to $\overline{TU}$; the figure is a trapezoid.

17. Circle the letter that does not have line symmetry.

FEET

18. Addison made this pattern by shading squares. Draw the next figure in the pattern.



19. Leah drew Figure 1 and Sean drew Figure 2.

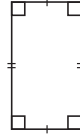


Figure 1



Figure 2

Part A

Leah says both figures are squares. Do you agree with Leah? Support your answer.

No. Possible answer: A square has opposite sides that are parallel, four sides equal in length, and four right angles. Figure 1 does not have four sides equal in length.

Part B

Sean says both figures are rectangles. Do you agree with Sean? Support your answer.

Yes. Possible answer: A rectangle has two pairs of opposite sides that are parallel and equal in length and 4 right angles. Both figures have opposite sides that are parallel, opposite sides that are equal in length, and 4 right angles.



Name _____

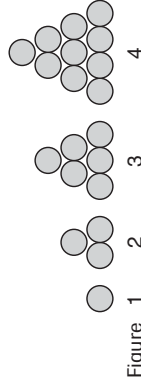
Chapter 10 Test
Page 6

20. Jared found the number of lines of symmetry for the figure. How many lines of symmetry does it have?



2 lines of symmetry

21. Jon drew the pattern shown.



Part A

Describe Jon's pattern.

Possible description: each figure has an additional row of circles. The number of circles is equal to the figure number.

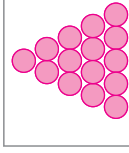
Part B

Write a rule using numbers to find the number of circles in any figure in his pattern.

Possible rule: add all of the numbers together that are less than or equal to the figure number.

Part C

Draw Figure 5.

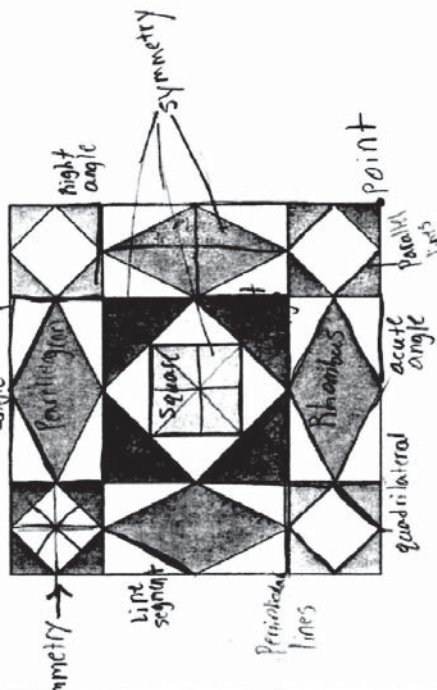


Chapter 10

Name _____

Quilting Bee

The Art Quilt Gallery has an exhibit of old and new quilts. This is the quilt that Naomi and her mother liked best at the gallery show.



1. Place a check next to each geometric feature found in this quilt pattern. Then label it on the picture of the quilt.

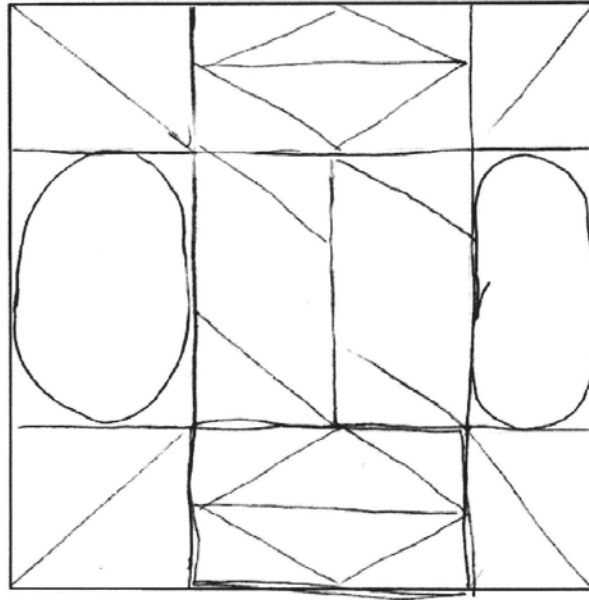
☒ point	☒ quadrilateral
☒ line	☒ parallelogram
☒ line segment	☒ acute triangle
☒ ray	☒ parallel lines
☒ square	☒ rectangle
☒ right triangle	☒ rhombus
☒ right angle	☒ trapezoid
☒ acute angle	☒ obtuse triangle
☒ obtuse angle	☒ perpendicular lines

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2. Which shapes in the quilt have line symmetry? Label the figures on the quilt. Then draw the lines of symmetry.

These shapes have symmetry:
 square
 rhombus
 right triangle
 rectangle

3. Make your own pattern for a quilt. Include a pair of parallel line segments, a pair of perpendicular line segments, two kinds of quadrilaterals, and an obtuse triangle. Include any other shapes you choose. Explain your pattern in words.

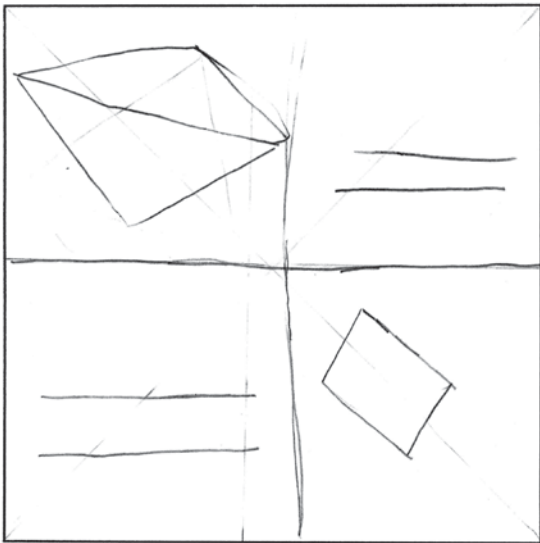


My pattern is a pattern that is all straight lines except for two ovals. It has rectangles and rhombuses and obtuse triangle. It has squares and right triangles.

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2. Which shapes in the quilt have line symmetry? Label the figures on the quilt. Then draw the lines of symmetry.

3. Make your own pattern for a quilt. Include a pair of parallel line segments, a pair of perpendicular line segments, two kinds of quadrilaterals, and an obtuse triangle. Explain your pattern in words.



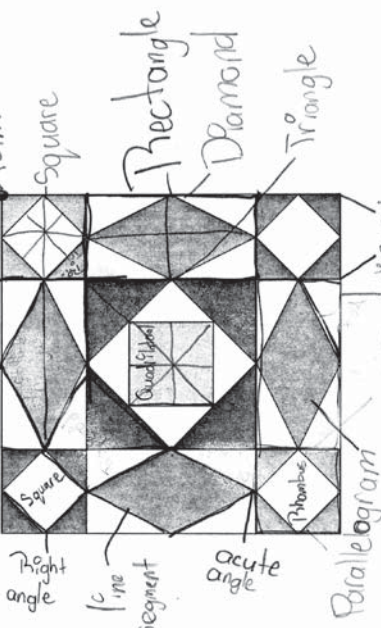
I split the quilt with perpendicular lines. I have two pairs of parallel lines. A parallelogram and two obtuse triangles forming a diamond.

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Chapter 10

Quilting Bee

The Art Quilt Gallery has an exhibit of old and new quilts. This is the quilt that Naomi and her mother liked best at the gallery show.



Labels on quilt: Point, Square, Rectangle, Diamond, Triangle, Rhombus, Parallelogram, Right angle, Obtuse angle, Acute angle, Line segment, Perpendicular lines, Parallel lines.

1. Place a check next to each geometric feature found in this quilt pattern. Then label it on the picture of the quilt.

☒ point	☒ quadrilateral
☒ line	☒ parallelogram
☒ line segment	☒ acute triangle
☒ ray	☒ parallel lines
☒ square	☒ rectangle
☒ right triangle	☒ rhombus
☒ right angle	☒ trapezoid
☒ acute angle	☒ obtuse triangle
☒ obtuse angle	☒ perpendicular lines



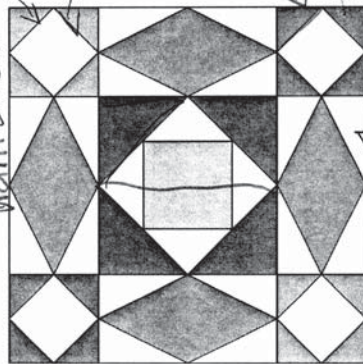
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Chapter 10

Quilting Bee

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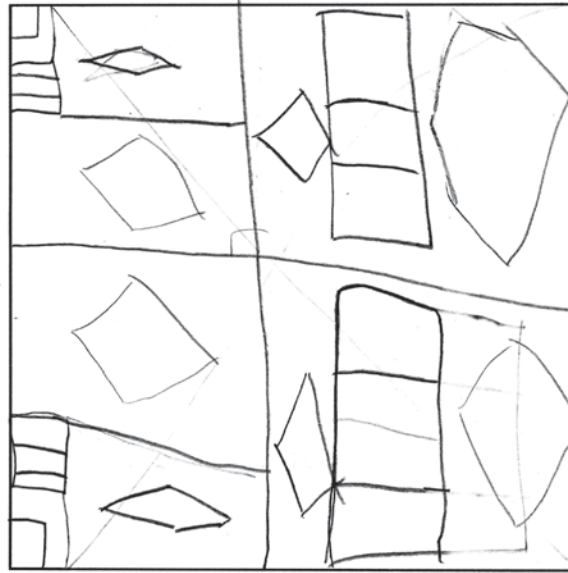


1. Place a check next to each geometric feature found in this quilt pattern. Then label it on the picture of the quilt.

☒ point	☐ quadrilateral
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☒ line segment	☐ acute triangle
☐ ray	☐ parallel lines
☒ square	☒ rectangle
☒ right triangle	☐ rhombus
☒ right angle	☐ trapezoid
☐ acute angle	☒ obtuse triangle
☒ obtuse angle	☒ perpendicular lines

2. Which shapes in the quilt have line symmetry? Label the figures on the quilt. Then draw the lines of symmetry.

3. Make your own pattern for a quilt. Include a pair of parallel line segments, a pair of perpendicular line segments, two kinds of quadrilaterals, and an obtuse triangle. Include any other shapes you choose. Explain your pattern in words.



I Put crooked lines and straight lines, Diamonds and Squares.

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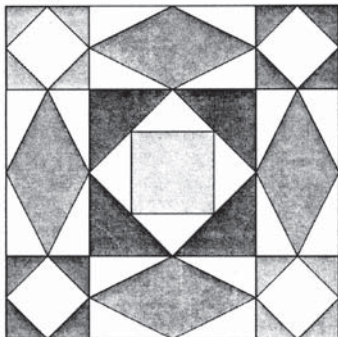
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Chapter 10

Quilting Bee

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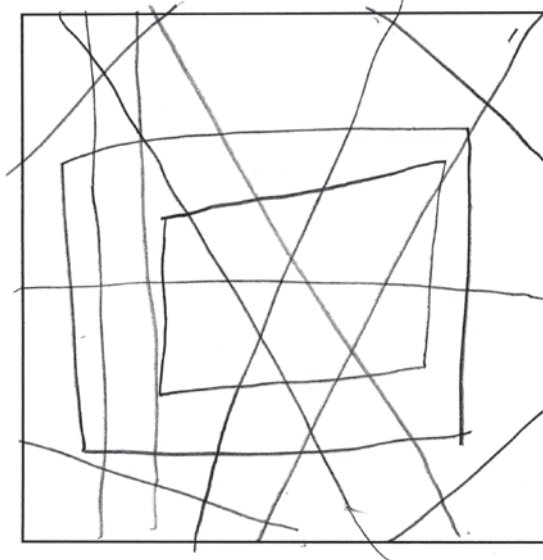
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☒	point	☒	quadrilateral
☒	line	☒	parallelogram
☒	line segment	☒	acute triangle
☒	ray	☒	parallel lines
☒	square	☒	rectangle
☒	right triangle	☒	rhombus
☒	right angle	☒	trapezoid
☒	acute angle	☒	obtuse triangle
☒	obtuse angle	☒	perpendicular lines

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2. Which shapes in the quilt have line symmetry? Label the figures on the quilt. Then draw the lines of symmetry.

3. Make your own pattern for a quilt. Include a pair of parallel line segments, a pair of perpendicular line segments, two kinds of quadrilaterals, and an obtuse triangle. Include any other shapes you choose. Explain your pattern in words.



i just drew straight lines

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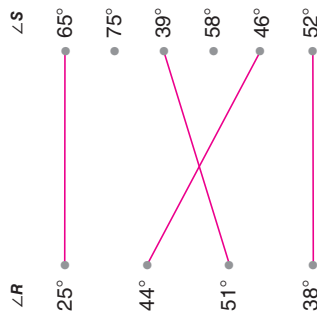
Chapter 11 Test
Page 1

1. An angle represents $\frac{1}{10}$ of a circle. Use the numbers to show how to find the measure of the angle in degrees.

$$\frac{1}{10} = \frac{1 \times \boxed{36}}{10 \times \boxed{36}} = \frac{\boxed{36}}{360}$$

The angle measure is $\boxed{36^\circ}$.

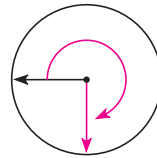
2. Match the measure of each $\angle R$ with the measure of $\angle S$ that forms a right angle.



3. Alejandro drew an acute angle. Which could be the measure of the angle he drew? Mark all that apply.

- ☒ 60° ☐ 97°
☒ 12° ☐ 90°

4. Draw an angle that represents a $\frac{3}{4}$ turn clockwise on the circle. **Possible answer is shown.**



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Chapter 11 Test



Name _____

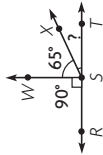
Chapter 11 Test
Page 2

5. Nina drew the figure shown. For 5a–5c, select Yes or No to tell whether the statement is true.

- 5a. The measure of a straight angle is 360° . ☐ Yes ☒ No
- 5b. To find the measure of x , Nina can subtract 105° from 360° . ☐ Yes ☒ No
- 5c. The measure of x is 75° . ☒ Yes ☐ No



6. Kayla drew this figure with a protractor.



Part A

Write an equation that can be used to find the $m\angle XST$.

$$90^\circ + 65^\circ + x = 180^\circ$$

Part B

What is the measure of $\angle XST$? Describe how you solved the equation and how you can check your answer.

25°; possible answer: I found the sum of 90° and 65° . Then I subtracted this sum from 180° to find the value of x . I can check the answer by replacing x with 25 and checking that it makes a true equation; $90 + 65 + 25 = 180$.

7. Use a protractor to find the measure of the angle.

The angle measures $\boxed{45^\circ}$.



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Chapter 11 Test

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Page 3

8. Paula drew this angle on the circle. Which describes the angle? Mark all that apply.

☒ $\frac{1}{2}$ turn

☒ clockwise

☐ $\frac{1}{4}$ turn

☐ counterclockwise

9. Marla has a piece of felt that is $\frac{1}{3}$ of a large circle. She cuts the piece of felt in half from the center point of the circle. What is the angle measure of each part?

The angle measures 60°.

10. Use a protractor to find the measure of each angle. Write each angle and its measure in a box ordered by the measure of the angles from least to greatest.

Angle: **B**
Measure: **80°**

Angle: **A**
Measure: **130°**

Angle: **C**
Measure: **150°**

11. Use the numbers and symbols to write an equation that can be used to find the measure of the unknown angle.

90 + 52 + x = 180

52

90

180

360

x

=

+

×

What is the measure of the unknown angle? 38°



Name _____

Chapter 11 Test
Page 4

12. Choose the word and angle measure to complete a true statement about $\angle MNO$.

$\angle MNO$ is a(n) obtuse angle that has a measure of 150°.

13. Rachael began walking her dog at 3:00 P.M. She stopped at 3:30 P.M. How many degrees did the minute hand turn during Rachael's walk? Explain how you found your answer.

180°; possible explanation: I shaded the part of the clock that the minute hand turned from 3:00 to 3:30 and found that it was a $\frac{1}{2}$ turn. Then I found that $\frac{1}{2} = \frac{180}{360}$ to find the number of degrees the minute hand turned.

14. An angle measures 51° . Through what fraction of a circle does the angle turn?

51

of a circle

360

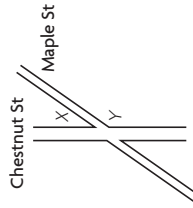


Name _____

18. Two angles, $\angle M$ and $\angle N$, form a straight angle. $\angle M$ measures 50° . For numbers 18a–18c, select True or False for the statement.
- 18a. $\angle N$ is an acute angle. ☐ True ☒ False
- 18b. The equation $180^\circ - 50^\circ = x^\circ$ can be used to find the measure of $\angle N$. ☒ True ☐ False
- 18c. The measure of $\angle N$ is 130° . ☒ True ☐ False
19. A circle is divided into parts. Which sum could represent the angle measures that make up the circle? Mark all that apply.

- ☒ $120^\circ + 120^\circ + 120^\circ$
- ☐ $47^\circ + 61^\circ + 78^\circ + 83^\circ + 101^\circ$
- ☒ $15^\circ + 40^\circ + 53^\circ + 62^\circ + 90^\circ + 100^\circ$
- ☐ $20^\circ + 30^\circ + 60^\circ + 70^\circ$

20. Use a protractor to find the measures of the unknown angles.



$m\angle X = 35^\circ$ $m\angle Y = 145^\circ$

What do you notice about the measures of the unknown angles? Is this what you would have expected? Explain your reasoning.

Possible answer: The measures of the angles have a sum of 180° . Even though the angles are divided by a large bar that represents Maple Street, this makes sense because the angles make up a straight angle.

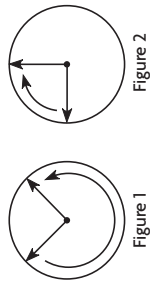
Name _____

15. Write the letter for each angle measure in the correct box.

- (A) 20° (B) 77° (C) 111° (D) 180° (E) 175° (F) 90°

acute A, B	obtuse C, E	right F	straight D
----------------------	-----------------------	-------------------	----------------------

16. For numbers 16a–16b, select the fraction that makes a true statement about the figure.



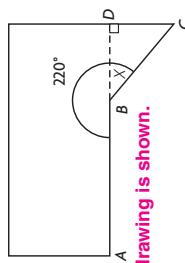
- 16a. The angle in Figure 1 represents a $\frac{1}{4}$ turn.

$\frac{1}{4}$	$\frac{1}{2}$	$\frac{3}{4}$
---------------	---------------	---------------

- 16b. The angle in Figure 2 represents a $\frac{1}{4}$ turn.

$\frac{1}{4}$	$\frac{1}{2}$	$\frac{3}{4}$
---------------	---------------	---------------

17. Jeffrey cuts a rectangle out of a piece of scrap paper as shown. He wants to calculate the angle measure of the piece that is left over.



Part A

Draw a bar model to represent the problem. **Possible drawing is shown.**

180°	x
------	---

220°

Part B

Write and solve an equation to find x.

$m\angle ABD + m\angle CBD = m\angle ABC$;
 $180 + x = 220$; $x = 40$

The angle measures 40° .

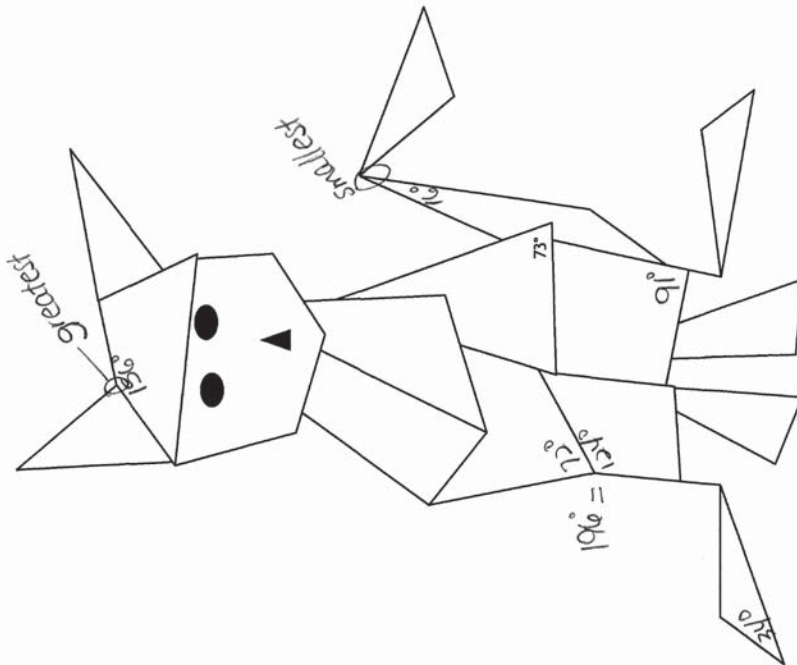
GO ON

Chapter 11

Name _____

Klee Kat

Paul Klee was an artist who painted using geometric shapes. A cat painted by Paul Klee might look something like this.



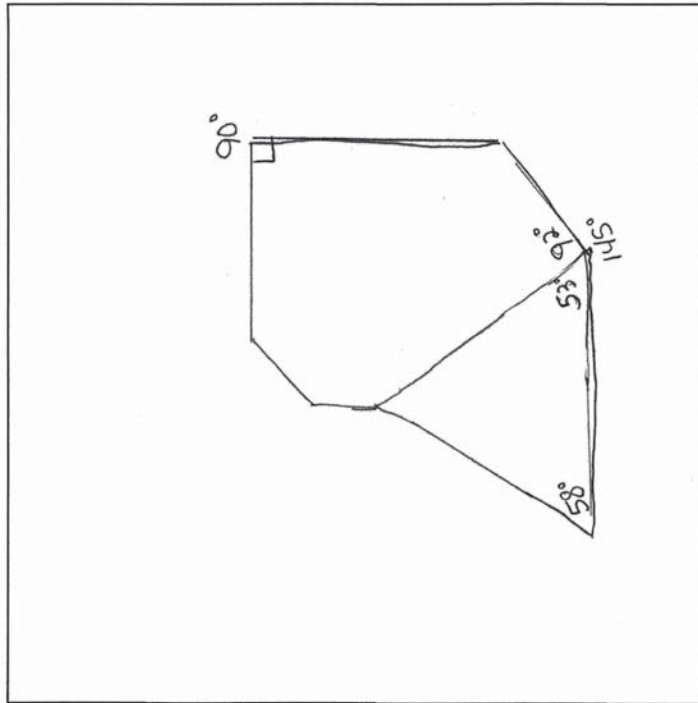
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1. Find these angles in the cat. Use the letters to mark each angle on the drawing as you find it. Then write the angle measures on the drawing. One angle measure is shown as an example.

- a. an angle of 34°
- b. the angle closest to 90°
- c. two angles whose sum is 196°
- d. the smallest angle
- e. the greatest angle

2. Make your own geometric drawing. Include the following angles and mark them on the drawing.

- a. one angle of 58°
- b. one right angle
- c. two angles whose sum is 145°



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Chapter 11

Name _____

Klee Kat

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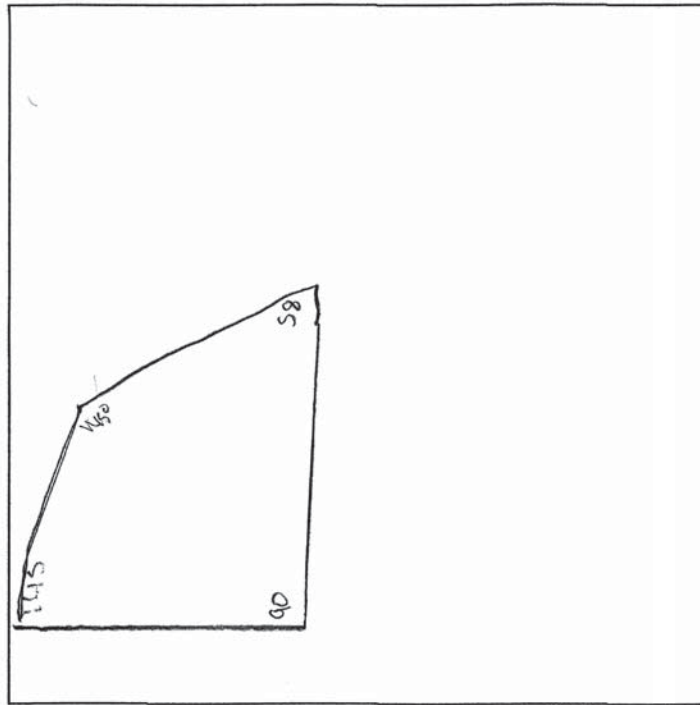
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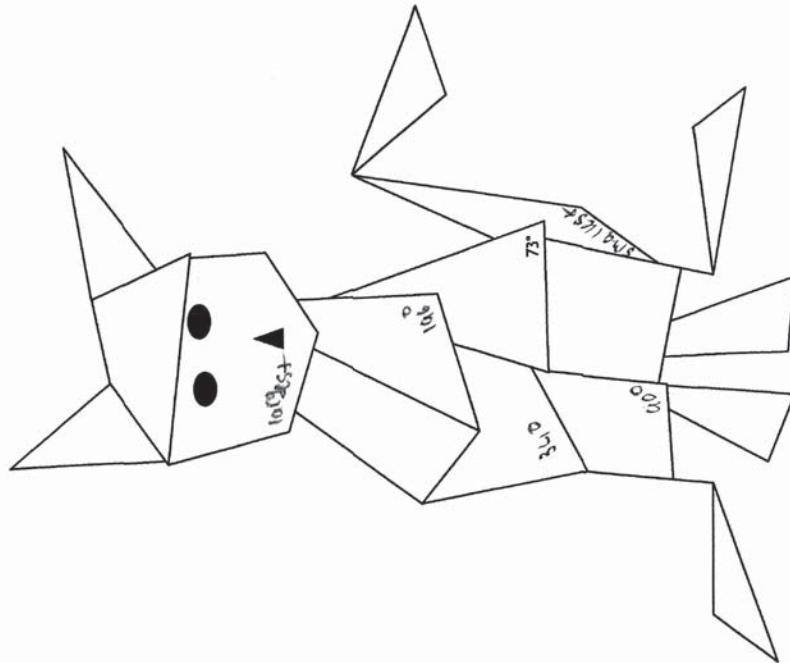
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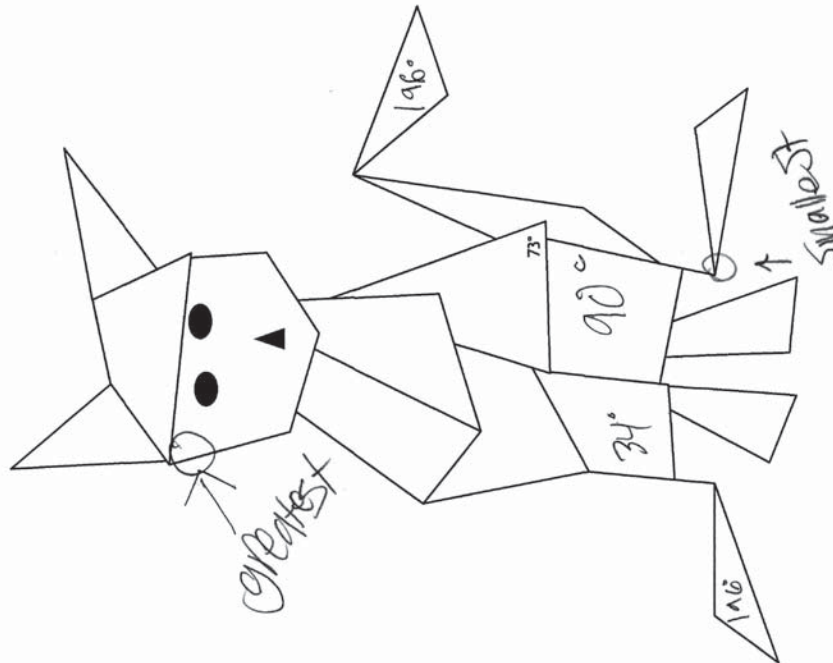
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Chapter 11

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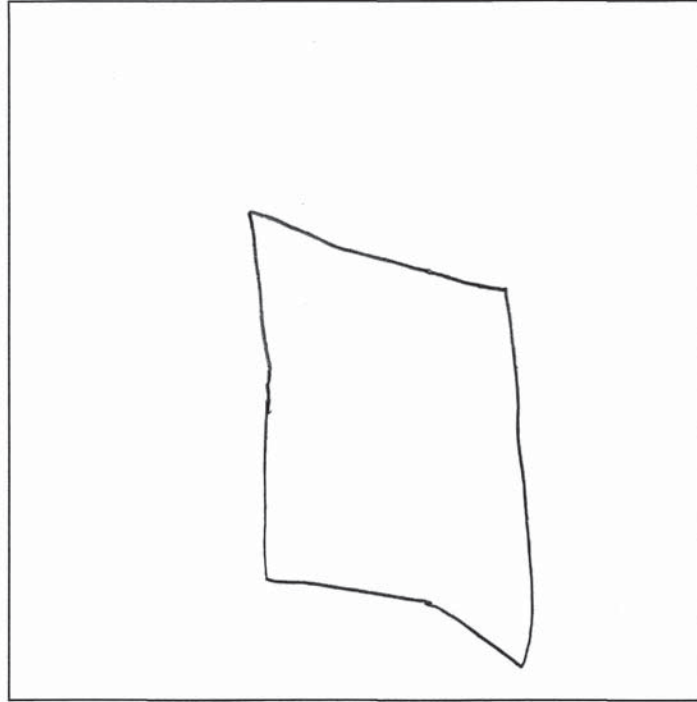
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- b. one right angle
- c. two angles whose sum is 145°



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Name _____

Chapter 12 Test
Page 1

1. Mrs. DeMarco wants to estimate the height of her garage door. Select the best benchmark for her to use.

- (A) the width of a paperclip
(B) the length of a baseball bat
(C) the height of a license plate
(D) how far she can walk in 20 minutes

2. Fred has been taking guitar lessons for 100 weeks. Nancy has been taking guitar lessons for 3 years. Compare the times spent taking guitar lessons. Complete the sentence.

Nancy _____ has been taking lessons for **56 weeks** longer than **Fred** _____.

3. Select the measures that are equal. Mark all that apply.

- (A) 12 feet (B) 30 feet (C) 36 feet
(D) 10 yards (E) 120 inches (F) 360 inches

4. Micki bought 4 gallons of apple cider. Micki says she bought 1 quart of apple cider. Explain Micki's error. Then find the correct number of quarts of apple cider.

Possible explanation: Micki divided the number of gallons by 4. There are 4 quarts in each gallon. She should have multiplied the number of gallons by 4; $4 \times 4 = 16$, there are 16 quarts of cider.



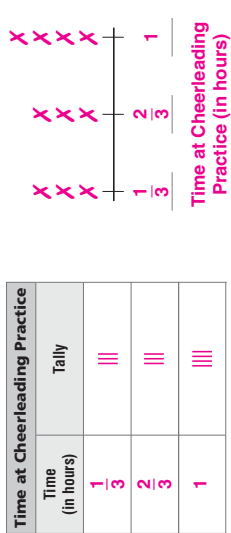
Name _____

Chapter 12 Test
Page 2

5. Leah has cheerleading practice each day after school. The data shows the lengths of time Leah had practice for 2 weeks.

Part A

Make a tally table and line plot to show the data.



Part B

Explain how you used the tally table to label the numbers and plot the Xs.

Possible explanation: first, I ordered the data from least to greatest time to complete the tally table. Then, I labeled the fraction lengths on the number line from the least value to the greatest value. Finally, I plotted an X for each data point.

Part C

What is the difference between the longest time and shortest time Leah spent at cheerleading practice? $\frac{2}{3}$ hour

6. Select the correct word to complete the sentence. Theo needs a drop of food coloring for a recipe.

A drop of food coloring is about
 1 liter
 1 milliliter
 1 meter
 1 millimeter



Name _____

Chapter 12 Test
Page 3

7. Write the symbol that compares the weights correctly.

<

=

>

20 ounces < 10 pounds 8,000 pounds = 4 tons

8. Shirlee bought 2 yards of fabric. She will use it to make new pillow covers. How many inches of fabric did she buy?

72 inches

9. A large bag of rice weighs 12 pounds 4 ounces. After Malcolm uses some rice in a casserole, the bag weighs 8 pounds 11 ounces. What is the weight of the rice Malcolm used in the casserole? Write the numbers to show the correct subtraction.

3

9

10

11

14

19

20

10. Rachel made this table to relate two units of time.

Years	Weeks
1	52
2	104
3	156
4	208

Part A
List the number pairs for the table. Then describe the relationship between the numbers in each pair.

1 and 52, 2 and 104, 3 and 156, 4 and 208; possible description: the second number in each pair is fifty two times as great as the first number in each pair.

Part B
Label the columns of the table. Explain your answer.

Labels are given; possible explanation: years and weeks are both units of time. The table shows a pattern for the relationship between years and weeks since the number of weeks is 52 times the number of years.

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Chapter 12 Test

Name _____

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Page 4

11. The table shows the distances some students walked to school. Complete the line plot to show the data.

Distance Students walked to school (in miles)
1
2
3
4
5

Distance Students walked to school (in miles)

How many students walk less than 1 mile to school? 11 students

12. An ocean aquarium is home to a gray whale that weighs 35 tons. How many pounds does the gray whale weigh? 70,000 pounds

13. Lauren bought two items to make dinner. She says the difference in mass between the items she bought is 4,000 grams. Which two items did Lauren buy?

● turkey: 6 kilograms

● bag of sweet potatoes: 2 kilograms

● crate of apples: 8 kilograms

● bag of stuffing: 1 kilogram

● bag of ears of corn: 3 kilograms

14. Write the equivalent measurements in each column.

2,000 millimeters	200 centimeters	20 centimeters	
$\frac{25}{100}$ meter	0.200 meter	0.25 meter	
$\frac{200}{1,000}$ meter	250 millimeters	20 decimeters	

2 meters

2,000 millimeters

200 centimeters

20 decimeters

25 centimeters

25 meter

100

0.25 meter

250 millimeters

200 millimeters

200 meters

1,000 meters

0.200 meters

20 centimeters

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12-30

Chapter 12 Test

Name _____

15. Celeste is making lemonade. She mixes 6 pints each of fresh-squeezed lemon juice and water. How many fluid ounces of lemonade does Celeste make?

16. Paul's skateboarding competition will start at 1:30 A.M., but the competitors must arrive at the skate park three-quarters of an hour early to warm up. The competition must end by 1:30 P.M.

Part A

Paul says he has to be at the skate park at 9:30 A.M. Is Paul correct? Explain your answer.

No. Paul should be there by 10:45 A.M. Possible explanation: I know 1 hour = 60 minutes, so $\frac{3}{4}$ hour = $\frac{3}{4} \times 60$ or 45 minutes. Starting at 11:30 A.M., I pictured the minute hand moving back 45 minutes from 11:30 A.M., which is 10:45 A.M.

Part B

The skate park closes at 6:45 P.M. There is a 15-minute break between each round of competitions at the skate park, and each round takes the same amount of time as Paul's round. How many more rounds can there be before the skate park closes? Explain your answer.

2 more rounds; possible explanation: Paul's round ends at 1:30 P.M. the next round starts at 1:45 P.M. after a 15-minute break. The round ends at 3:45 P.M. The last round starts at 4:00 P.M. and ends at 6:00 P.M. There is not enough time for another round.

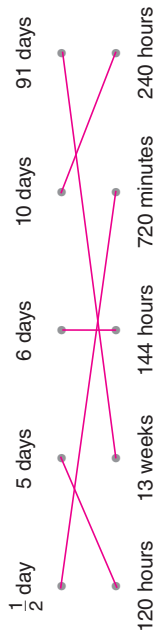
17. For numbers 17a–17e, select Yes or No to tell whether the measurements are equivalent.

- 17a. 800 milliliters and 8 liters ☐ Yes ☒ No
17b. 9 grams and 9,000 kilograms ☐ Yes ☒ No
17c. 5,000 grams and 5 kilograms ☒ Yes ☐ No
17d. 7 milliliters and 7,000 liters ☐ Yes ☒ No
17e. 3 liters and 3,000 milliliters ☒ Yes ☐ No

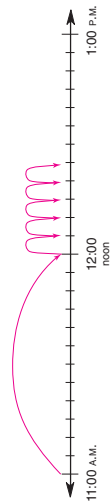


Name _____

18. Draw lines to match equivalent time intervals.



19. An author signed books at a book store starting at 11:00 A.M. She signed books for 1 hour 25 minutes. Draw a time line to show the end time.



The author stopped signing books at **12:25** P.M.

20. The tables show patterns for some units of measurement. Write the correct labels in each table.

Yards	Days	Inches	Pints	Hours	Feet	Weeks
-------	------	--------	-------	-------	------	-------

Feet	Inches	Days	Hours	Quarts	Pints
1	12	1	24	1	2
2	24	2	48	2	4
3	36	3	72	3	6
4	48	4	96	4	8

21. Jakob plays the violin. His bow is 8 decimeters long. How many meters long is Jakob's bow?

$\frac{8}{10}$ or 0.8 meters long

22. Kyle is practicing for a 3-mile race. His normal time is 23 minutes 26 seconds. Yesterday it took him only 21 minutes 38 seconds. How much faster was Kyle's time yesterday than his normal time?

1 minute 48 seconds faster



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Chapter 12

Store Storage

A large store has a warehouse it uses for storage. Trucks back up to the loading dock where merchandise is unloaded, sorted, and stacked in the correct area of the warehouse.

1. The large shelves in the storage area are 17 feet 8 inches apart so the forklift machines can operate between the shelves. Is that distance greater than or less than 216 inches? Explain your math reasoning.

$$17 \times 12 = 204 \text{ in} \quad 204 + 8 = 212 \text{ in}$$

$$216 > 212$$

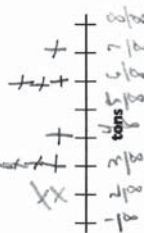
The distance is less than 216 inch

I know $12 \text{ in} = 1 \text{ ft}$ so I multiply 12×17 to find all inches and then add 8. Now I can compare inches to inches.

2. The dock foreman recorded these weights of the crates unloaded from one of the trucks.

Weight of Crate (tons)	
$\frac{1}{8}$	$\frac{3}{8}$
$\frac{2}{8}$	$\frac{4}{8}$
$\frac{3}{8}$	$\frac{5}{8}$
$\frac{4}{8}$	$\frac{6}{8}$
$\frac{5}{8}$	$\frac{7}{8}$
$\frac{6}{8}$	$\frac{8}{8}$

- a. Make a line plot to show the data.



$$1 \text{ ton} = 2,000 \text{ lbs.}$$

- b. The weight limit for the truck is 13,000 lb. Was the truck overweight or underweight? Explain your math reasoning.

$$\frac{1}{8} + \frac{2}{8} + \frac{3}{8} + \frac{4}{8} + \frac{3}{8} + \frac{2}{8} + \frac{1}{8} + \frac{1}{8} = \frac{17}{8}$$

I add all fractions together. I know

$$16 \times 2,000 = 32,000 \text{ lbs.} \quad 1 \text{ ton} = 2,000 \text{ lbs.} = 6 \text{ tons}$$

The truck is underweight.
 $12,000 < 13,000$

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3. The dock foreman gets to work each day at 5:30 A.M. He goes to lunch at 11:15 A.M. and gets back to work at noon. He goes home for the day at 3:05 P.M. How many hours does the foreman work in a 5-day work week?

$$5:30 \text{ to } 11:15 \quad 5 \text{ hr } 45 \text{ min}$$

$$noon \text{ to } 3:05 \quad 3 \text{ hr } 5 \text{ min}$$

$$\begin{array}{r} 8 \text{ hr } 50 \text{ min} \\ \times \quad 5 \\ \hline 40 \text{ hr. } 250 \text{ min.} \end{array}$$

$$1 \text{ hr} = 60 \text{ min.}$$

$$\begin{array}{r} 60 \sqrt{250} \\ 240 \\ \hline 10 \text{ min} \end{array}$$

$$40 \text{ hr} + 4 \text{ hr} + 10 \text{ min.}$$

44 hr and 10 min. a week

4. In the pet supply area of the warehouse is a crate of flea shampoo for cats. Each crate holds 48 boxes. Each box holds 8 bottles of shampoo. Each bottle contains 5 mL of the chemical that gets rid of the fleas. How many liters of the chemical is in the crate of shampoo? Give your answer as a fraction and as a decimal.

$$\begin{array}{r} 8 \\ \times 5 \text{ mL} \\ \hline 40 \text{ mL} \end{array}$$

$$\begin{array}{r} 48 \\ 40 \text{ mL} \times 48 \\ \hline 00 \\ 192 \\ \hline 1920 \text{ mL} \end{array}$$

$$1 \text{ L} = 1000 \text{ mL}$$

$$1 \text{ L, } 920 \text{ mL}$$

$$192 \text{ L or } 1 \frac{920}{1000} \text{ L}$$

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Store Storage

A large store has a warehouse it uses for storage. Trucks back up to the loading dock where merchandise is unloaded, sorted, and stacked in the correct area of the warehouse.

- The large shelves in the storage area are 17 feet 8 inches apart so the forklift machines can operate between the shelves. Is that distance greater than or less than 216 inches? Explain your math reasoning.

The distance is less than because
 17 times 12 equal 202 plus 8 equal 210
 210.

- The dock foreman recorded these weights of the crates unloaded from one of the trucks.

Weight of Crate (tons)
2, 3, 4, 6, 7, 2, 3, 3, 6, 3, 3, 6

- Make a line plot to show the data.



- The weight limit for the truck is 13,000 lb. Was the truck overweight or underweight? Explain your math reasoning.

The truck was underweight because if you add all the numbers you will get 12,000 pounds.

$$\begin{array}{r} \checkmark 223333346667 \\ 8 \end{array}$$

$$\begin{array}{r} 6 \times 2,000 \\ 12,000 \end{array}$$

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- The dock foreman gets to work each day at 5:30 a.m. He goes to lunch at 11:15 a.m. and gets back to work at noon. He goes home for the day at 3:05 p.m. How many hours does the foreman work in a 5-day work week?

Morning: 5 hrs 15 min
 + 3 hr 20 min
 = 8 hr 35 min
 44 hrs 10 min

- In the pet supply area of the warehouse is a crate of flea shampoo for cats. Each crate holds 48 boxes. Each box holds 8 bottles of shampoo. Each bottle contains 5 mL of the chemical that gets rid of the fleas. How many liters of the chemical is in the crate of shampoo? Give your answer as a fraction and as a decimal.

$$\begin{array}{r} 48 \\ \times 8 \\ \hline 384 \\ \times 5 \\ \hline 1920 \end{array}$$

$$\begin{array}{r} 1920 \\ - 100 \\ \hline 1820 \end{array}$$

$$\begin{array}{r} 1820 \\ - 92 \\ \hline 1728 \end{array}$$

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Store Storage

A large store has a warehouse it uses for storage. Trucks back up to the loading dock where merchandise is unloaded, sorted, and stacked in the correct area of the warehouse.

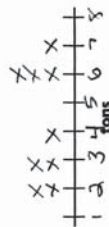
1. The large shelves in the storage area are 17 feet 8 inches apart so the forklift machines can operate between the shelves. Is that distance greater than or less than 216 inches? Explain your math reasoning.

The distance is less than
216 inches because it is 212
inches. I got this by multiplying
12 by 17 then adding 8.

2. The dock foreman recorded these weights of the crates unloaded from one of the trucks.

Weight of Crate (tons)
2, 3, 4, 6, 7, 2, 3, 3, 3, 3, 6 8, 8, 8, 8, 8, 8, 8, 8, 8, 8, 8

- a. Make a line plot to show the data.



- b. The weight limit for the truck is 13,000 lb. Was the truck overweight or underweight? Explain your math reasoning.

The weight limit of the truck
is 13,000 lbs therefore it is
overweight. I got this by multiplying
all of the numbers by the
amount of X's then adding them
all together.

$$\begin{array}{r} 250 \\ 8 \overline{) 2000} \\ \underline{160} \\ 400 \\ \underline{400} \\ 0 \end{array}$$

$$\begin{array}{r} 1,500 \\ \times 3 \\ \hline 4500 \end{array}$$

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$$\begin{array}{r} 750 \\ \times 5 \\ \hline 3750 \\ 11000 \\ 4000 \\ 4500 \\ 1750 \\ \hline 11900 \end{array}$$

3. The dock foreman gets to work each day at 5:30 A.M. He goes to lunch at 11:15 A.M. and gets back to work at noon. He goes home for the day at 3:05 P.M. How many hours does the foreman work in a 5-day work week?

Morning - 5 hrs 45 mins
Noon - 3 hrs 5 mins
5:30
11:15
3:05
8 hrs 50 mins

$$\begin{array}{r} 8 \text{ hrs } 50 \text{ mins} \\ \times 5 \\ \hline 40 \text{ hrs } 250 \text{ mins} \\ \phantom{40 \text{ hrs }} - 60 \text{ mins} \\ \phantom{40 \text{ hrs }} \underline{190 \text{ mins}} \\ \phantom{40 \text{ hrs }} - 60 \text{ mins} \\ \phantom{40 \text{ hrs }} \underline{130 \text{ mins}} \\ \phantom{40 \text{ hrs }} - 60 \text{ mins} \\ \phantom{40 \text{ hrs }} \underline{70 \text{ mins}} \\ \phantom{40 \text{ hrs }} - 60 \text{ mins} \\ \phantom{40 \text{ hrs }} \underline{10 \text{ mins}} \end{array}$$

4. In the pet supply area of the warehouse is a crate of flea shampoo for cats. Each crate holds 48 boxes. Each box holds 8 bottles of shampoo. Each bottle contains 5 mL of the chemical that gets rid of the fleas. How many liters of the chemical is in the crate of shampoo? Give your answer as a fraction and as a decimal.

$$\begin{array}{r} 1920 \\ \times 8 \\ \hline 15360 \end{array}$$

$$\begin{array}{r} 15360 \\ \times 5 \\ \hline 76800 \end{array}$$

$$\begin{array}{r} 1920 \\ \times 1 \\ \hline 1920 \\ 1000 \overline{) 1920} \\ \underline{1000} \\ 920 \end{array}$$

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Chapter 12

Store Storage

A large store has a warehouse it uses for storage. Trucks back up to the loading dock where merchandise is unloaded, sorted, and stacked in the correct area of the warehouse.

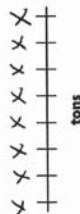
- The large shelves in the storage area are 17 feet 8 inches apart so the forklift machines can operate between the shelves. Is that distance greater than or less than 216 inches? Explain your math reasoning.

It is less than 216 inches
because I multiply 17 x 12
+ 8 and get 212.

- The dock foreman recorded these weights of the crates unloaded from one of the trucks.

Weight of Crate (tons)
2.3, 4.6, 7.2, 2.3, 2.5, 3.3, 5.6, 8.8, 8.8, 8.8, 8.8, 8.8, 8.8

- Make a line plot to show the data.



- The weight limit for the truck is 13,000 lb. Was the truck overweight or underweight? Explain your math reasoning.

overweight

- The dock foreman gets to work each day at 5:30 a.m. He goes to lunch at 11:15 a.m. and gets back to work at noon. He goes home for the day at 3:05 p.m. How many hours does the foreman work in a 5-day work week?

$$\begin{array}{r} 6 \text{ hours} \\ 4 \text{ hours} \\ \hline 10 \text{ hours} \\ \times 5 \\ \hline 50 \text{ hours} \end{array}$$

- In the pet supply area of the warehouse is a crate of flea shampoo for cats. Each crate holds 48 boxes. Each box holds 8 bottles of shampoo. Each bottle contains 5 mL of the chemical that gets rid of the fleas. How many liters of the chemical is in the crate of shampoo? Give your answer as a fraction and as a decimal.



$$\begin{array}{r} 48 \\ \times 8 \\ \hline 384 \end{array}$$

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Chapter 13 Test
Page 1

1. For numbers 1a–1e, select Yes or No to indicate if a rectangle with the given dimensions would have a perimeter of 60 inches.

1a. length: 15 inches	width: 15 inches	Yes ☒	No ☐
1b. length: 20 inches	width: 10 inches	Yes ☒	No ☐
1c. length: 25 inches	width: 4 inches	Yes ☐	No ☒
1d. length: 27 inches	width: 3 inches	Yes ☒	No ☐
1e. length: 30 inches	width: 2 inches	Yes ☐	No ☒

2. Diane made a design using a small square, a medium square, and a large square. She shaded the small square and the outer region.

Part A

What is the area of each of the 3 squares she drew?
Show your work.

Small square: $3 \times 3 = 9$; **9 square inches**
Medium square: $10 \times 10 = 100$; **100 square inches**
Large square: $12 \times 12 = 144$; **144 square inches**

Part B

What is the area that is shaded? Explain how you found your answer.

53 square inches; possible answer: I found the area of the 12-inch square, subtracted the area of the 10-inch square, then added the area of the 3-inch square.

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3. Match the dimensions of the rectangles in the top row with the correct area or perimeter in the bottom row.

length: 6 in. width: 7 in.	length: 5 in. width: 8 in.	length: 7 in. width: 4 in.	length: 7 in. width: 7 in.
area = 40 sq in.	perimeter = 28 in.	area = 42 sq in.	perimeter = 22 in.

4. Karlie painted a portrait. The height of the portrait measures 14 inches. The width is half as long as the height. What is the area of the portrait?

98 square inches

5. Wilma used 60 centimeters of lace to make a border around a rectangular card. The width of the card is 20 centimeters. What is the length of the card? Use the numbers to write an equation and solve. A number may be used more than once.

10	15	20	30	40	50	60
----	----	----	----	----	----	----

$P = (2 \times l) + (2 \times w)$

$60 = (2 \times l) + (2 \times 20)$

$60 = (2 \times l) + 40$

$20 = 2 \times l$

$10 = l$

So, the length of the card is 10 centimeters.

6. Bill drew a rectangle with a perimeter of 16 inches. Then he tried to draw a square with a perimeter of 16 inches. Draw 3 different rectangles that Bill could have drawn. Then draw the square, if possible.

Check students' work. Possible dimensions of rectangles: 1 inch $\times$ 7 inches; 2 inches $\times$ 6 inches; 3 inches $\times$ 5 inches. The square is 4 inches by 4 inches.

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7. Gretchen and Ed are drawing plans for rectangular play areas. In Gretchen's plan, the play area is 15 feet by 12 feet. In Ed's plan the play area is 14 feet by 14 feet. For numbers 7a–7d, select True or False for each statement.

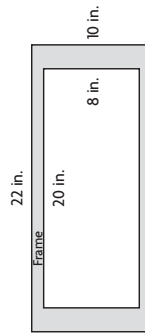
- 7a. The area of Ed's play area is 56 square feet. ☐ True ☒ False
- 7b. The area of Gretchen's play area is 180 square feet. ☒ True ☐ False
- 7c. Gretchen's play area has a greater area than Ed's play area. ☐ True ☒ False
- 7d. The area of Ed's play area is 16 square feet greater than Gretchen's. ☒ True ☐ False

8. Laura bought a square canvas to paint a picture of her cat. One side measures 22 centimeters. What is the area of the canvas? Show your work.

$$A = 22 \times 22$$
$$A = 484$$

The area of the canvas is 484 square centimeters.

9. Adrian bought a frame for a photograph that he took.



What is the area of the frame?

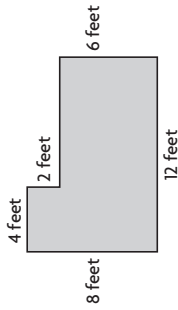
60 square inches

10. A farmer has 200 feet of fencing to use for a chicken pen. He wants the width of the pen to be 27 feet. Draw a rectangle that could be the space for the chicken pen. Label the length and the width.



Name _____

11. The diagram shows the dimensions of Anna's laundry room floor.



Use either addition or subtraction to find the area of the floor of the laundry room. Show your work.

Addition

$$\text{Top: } 2 \times 4 = 8$$

$$\text{Bottom: } 12 \times 6 = 72$$

$$\text{Total: } 8 + 72 = 80$$

The area of the floor of the laundry room is 80 square feet.

Subtraction

$$\text{Entire region: } 8 \times 12 = 96$$

$$\text{Small rectangle: } 2 \times 8 = 16$$

$$\text{Total: } 96 - 16 = 80$$

The area of the floor of the laundry room is 80 square feet.

12. One wall of Patel's bedroom is 13 feet wide and 8 feet tall. A window on the wall is 3 feet high and 6 feet long. Which statement tells how to find the amount of wallpaper Patel would need to cover this wall? Mark all that apply.

- ☐ A Add $13 + 8 + 3 + 6$.
- ☐ B Add 13×8 and 3×6 .
- ☒ C Subtract 18 from 13×8 .
- ☐ D Subtract 8×6 from 13×3 .
- ☐ E Subtract 13×8 from 3×6 .
- ☒ F Subtract 3×6 from 13×8 .

13. A row of lockers covers 160 square feet of space along a wall. If the lockers are 5 feet tall, what length along the wall do they cover?

32 feet



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14. Mr. Benson built a play area for his children and an office for himself.

Explain how he can find the amount of carpet he needs to cover the floor in both rooms. Then find the amount of carpet he will need.

Possible explanation: He can find the area of each rectangle and then find the sum. The area of the play area is 15×10 or 150 square feet. The area of the office is 10×10 or 100 square feet. The sum of the two rooms is $150 + 100$ or 250 square feet of carpeting.

15. Workers are fencing off a rectangular construction zone before they begin work. The length of the construction zone is 20 meters. The width of the construction zone is 5 meters less than the length.

How much fence do the workers need to enclose the construction zone? Explain how you found your answer.

70 meters; possible explanation: first, I found the width of the construction zone by subtracting 5 from 20; $20 - 5 = 15$. Then I used a formula to find the perimeter.

$$P = (2 \times l) + (2 \times w)$$

$$= (2 \times 20) + (2 \times 15)$$

$$= 40 + 30$$

$$= 70$$

GO ON

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16. Which rectangle has a perimeter of 20 feet? Mark all that apply.

2 ft 10 ft

4 ft 5 ft

7 ft 3 ft

8 ft 2 ft

(A) (B)

17. A wall is 12 feet long and 8 feet high. Mark hangs a picture on the wall that is 2 feet long and 1 foot wide. Choose the words that correctly complete the sentence.

To find the number of square feet of the wall that is NOT covered by the picture,

multiply
add
subtract

the
width of the wall
area of the wall

area of the picture
width of the wall
area of the wall

from
by
to

total area.
area of the wall.
area of the picture.

18. Lydia is cutting the shape from a piece of construction paper.

For numbers 18a–18c, select Yes or No to tell whether you can add the products to find the number of square centimeters Lydia needs.

18a. 7×4 and 3×1

18b. 7×1 and 4×1

18c. 1×3 and 7×1

Yes No

Yes No

Yes No

19. The Hernandez family built a backyard patio.

The width and length of the patio are whole numbers. What could be the dimensions of the patio?

Possible answer: 15 feet long by 10 feet wide

Area = 150 square feet

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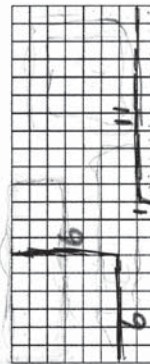
Chapter 13

Behind the Scenes

1. Most stages in professional theaters have a trap door and an elevator so large pieces of scenery or equipment can be brought to the stage. At a local theater the trap door has an area of 84 square feet, and has a whole number length and side measure. A concert grand piano needed for a performance has a length of 8 feet, 10 inches and a width of 5 feet, 2 inches. The piano fits through the trap door. What is the length and width of the trap door? What is the perimeter of the trap door? Explain your math reasoning.

at least 9ft long and 4ft wide
 $9 \times 6 = 54$ so it must be longer
 $9 \times 7 = 63$ $9 \times 10 = 90$ $8 \times 11 = 88$ $8 \times 12 = 96$ $7 \times 12 = 84$
 7×12 is correct. $P = 2 \times (7) + 2 \times (12) = 14 + 24 = 38$ feet

2. A play at the theater calls for a large window in the scenery. The art director has 24 feet of trim to put around the perimeter of the window. What is the greatest window area that could be made with a perimeter of 24 feet? What is the smallest possible window area? Draw models to support your conclusions.



The largest window can only be 6 feet wide and 6 feet tall 24 square feet
 the smallest can only be 1 foot tall & 11 feet long area of 11 square feet

3. At another theater, workers have to cut a new trap door.

The door can be no more than 130 square feet in area, with whole-number side lengths. They have to bring in 3 items to the stage. The first item is 6 feet, 5 inches wide and 8 feet, 9 inches long. The second item is 13 feet, 4 inches wide and 7 feet, 8 inches long. The third item is 5 feet, 6 inches wide and 12 feet, 4 inches long. What size of trap door would you recommend? What is the perimeter of your trap door? Explain your math reasoning. Show your work.

$14 \times 9 = 126$
 One side must be at least 14 feet. Do not the items in the other side, at least 8 feet.
 $8 \times 14 = 112$. It can be larger
 so we could do $9 \times 14 = 126$ ft with a perimeter of 46 feet - enough room for others + items.

Chapter 13

Behind the Scenes

1. Most stages in professional theaters have a trap door and an elevator so large pieces of scenery or equipment can be brought to the stage. At a local theater the trap door has an area of 84 square feet, and has a whole number length and side measure. A concert grand piano needed for a performance has a length of 8 feet, 10 inches and a width of 5 feet, 2 inches. The piano fits through the trap door. What is the length and width of the trap door? What is the perimeter of the trap door? Explain your math reasoning.

$9 \times 6 = 54$ - too fit around but not big enough

$7 \times 12 = 84$ works

Perimeter is $2 \times (7) + 2 \times (12) = 14 + 24 = 38$ feet

$9 \times 7 = 63$
 $9 \times 8 = 72$
 $9 \times 9 = 81$

2. A play at the theater calls for a large window in the scenery. The art director has 24 feet of trim to put around the perimeter of the window. What is the greatest window area that could be made with a perimeter of 24 feet? What is the smallest possible window area? Draw models to support your conclusions.

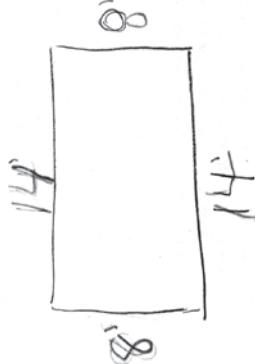


largest window 6 feet wide and 6 feet tall
with an area of 36 square feet.
smallest window is 11 feet wide and 1 foot tall
with an area of 11 square feet.

3. At another theater, workers have to cut a new trap door. The door can be no more than 130 square feet in area, with whole-number side lengths. They have to bring in 3 items to the stage. The first item is 6 feet, 5 inches wide and 8 feet, 9 inches long. The second item is 33 feet, 4 inches wide and 7 feet, 8 inches long. The third item is 5 feet, 6 inches wide and 12 feet, 4 inches long. What size of trap door would you recommend? What is the perimeter of your trap door? Explain your math reasoning. Show your work.

14 x 8 door is 110 square feet.

perimeter is $2(8) + 2(14) =$
 $16 + 28 =$
 44



$$\begin{array}{r} 14488 \\ \hline 44 \end{array}$$

$14 \times 1 = 14$
 $14 \times 2 = 28$
 $14 \times 3 = 42$
 $14 \times 4 = 56$
 $14 \times 5 = 70$
 $14 \times 6 = 84$
 $14 \times 7 = 98$
 $14 \times 8 = 112$

Chapter 13

Name _____

Behind the Scenes

1. Most stages in professional theaters have a trap door and an elevator so large pieces of scenery or equipment can be brought to the stage. At a local theater the trap door has an area of 84 square feet, and has a whole number length and side measure. A concert grand piano needed for a performance has a length of 8 feet, 10 inches and a width of 5 feet, 2 inches. The piano fits through the trap door. What is the length and width of the trap door? What is the perimeter of the trap door? Explain your math reasoning.

perimeter = 8×5
length = 8 width 5

3. At another theater, workers have to cut a new trap door. The door can be no more than 130 square feet in area, with whole-number side lengths. They have to bring in 3 items to the stage. The first item is 6 feet, 5 inches wide and 8 feet, 9 inches long. The second item is 13 feet, 4 inches wide and 7 feet, 8 inches long. The third item is 5 feet, 6 inches wide and 12 feet, 4 inches long. What size of trap door would you recommend? What is the perimeter of your trap door? Explain your math reasoning. Show your work.

$4 \times 1 = 4$
 $4 \times 2 = 8$
 $4 \times 3 = 12$
 $4 \times 4 = 16$
 $4 \times 5 = 20$
 $4 \times 6 = 24$
 $4 \times 7 = 28$
 $4 \times 8 = 32$
 $4 \times 9 = 36$
 $4 \times 10 = 40$
 $4 \times 11 = 44$
 $4 \times 12 = 48$
 $4 \times 13 = 52$
 $4 \times 14 = 56$
 $4 \times 15 = 60$
 $4 \times 16 = 64$
 $4 \times 17 = 68$
 $4 \times 18 = 72$
 $4 \times 19 = 76$
 $4 \times 20 = 80$
 $4 \times 21 = 84$
 $4 \times 22 = 88$
 $4 \times 23 = 92$
 $4 \times 24 = 96$
 $4 \times 25 = 100$
 $4 \times 26 = 104$
 $4 \times 27 = 108$
 $4 \times 28 = 112$
 $4 \times 29 = 116$
 $4 \times 30 = 120$
 $4 \times 31 = 124$
 $4 \times 32 = 128$
 $4 \times 33 = 132$
 $4 \times 34 = 136$
 $4 \times 35 = 140$
 $4 \times 36 = 144$
 $4 \times 37 = 148$
 $4 \times 38 = 152$
 $4 \times 39 = 156$
 $4 \times 40 = 160$
 $4 \times 41 = 164$
 $4 \times 42 = 168$
 $4 \times 43 = 172$
 $4 \times 44 = 176$
 $4 \times 45 = 180$
 $4 \times 46 = 184$
 $4 \times 47 = 188$
 $4 \times 48 = 192$
 $4 \times 49 = 196$
 $4 \times 50 = 200$
 $4 \times 51 = 204$
 $4 \times 52 = 208$
 $4 \times 53 = 212$
 $4 \times 54 = 216$
 $4 \times 55 = 220$
 $4 \times 56 = 224$
 $4 \times 57 = 228$
 $4 \times 58 = 232$
 $4 \times 59 = 236$
 $4 \times 60 = 240$
 $4 \times 61 = 244$
 $4 \times 62 = 248$
 $4 \times 63 = 252$
 $4 \times 64 = 256$
 $4 \times 65 = 260$
 $4 \times 66 = 264$
 $4 \times 67 = 268$
 $4 \times 68 = 272$
 $4 \times 69 = 276$
 $4 \times 70 = 280$
 $4 \times 71 = 284$
 $4 \times 72 = 288$
 $4 \times 73 = 292$
 $4 \times 74 = 296$
 $4 \times 75 = 300$
 $4 \times 76 = 304$
 $4 \times 77 = 308$
 $4 \times 78 = 312$
 $4 \times 79 = 316$
 $4 \times 80 = 320$
 $4 \times 81 = 324$
 $4 \times 82 = 328$
 $4 \times 83 = 332$
 $4 \times 84 = 336$
 $4 \times 85 = 340$
 $4 \times 86 = 344$
 $4 \times 87 = 348$
 $4 \times 88 = 352$
 $4 \times 89 = 356$
 $4 \times 90 = 360$
 $4 \times 91 = 364$
 $4 \times 92 = 368$
 $4 \times 93 = 372$
 $4 \times 94 = 376$
 $4 \times 95 = 380$
 $4 \times 96 = 384$
 $4 \times 97 = 388$
 $4 \times 98 = 392$
 $4 \times 99 = 396$
 $4 \times 100 = 400$

$14 \times 8 = 112$

14

8 14

Chapter 13

Name _____

Behind the Scenes

1. Most stages in professional theaters have a trap door and an elevator so large pieces of scenery or equipment can be brought to the stage. At a local theater the trap door has an area of 84 square feet, and has a whole number length and side measure. A concert grand piano needed for a performance has a length of 8 feet, 10 inches and a width of 5 feet, 2 inches. The piano fits through the trap door. What is the length and width of the trap door? What is the perimeter of the trap door? Explain your math reasoning.

perimeter = 8×5
length = 8 width 5

2. A play at the theater calls for a large window in the scenery. The art director has 24 feet of trim to put around the perimeter of the window. What is the greatest window area that could be made with a perimeter of 24 feet? What is the smallest possible window area? Draw models to support your conclusions.

largest window = 8×4
smallest window = 1×12

Name _____

Chapter 13

Behind the Scenes

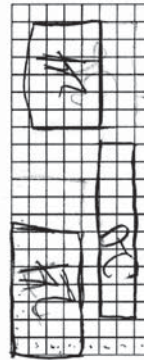
1. Most stages in professional theaters have a trap door and an elevator so large pieces of scenery or equipment can be brought to the stage. At a local theater the trap door has an area of 84 square feet, and has a whole number length and side measure. A concert grand piano needed for a performance has a length of 8 feet, 10 inches and a width of 5 feet, 2 inches. The piano fits through the trap door. What is the length and width of the trap door? What is the perimeter of the trap door? Explain your math reasoning.

$$\text{perimeter} = 84$$

$$\text{length} = \text{width}$$



2. A play at the theater calls for a large window in the scenery. The art director has 24 feet of trim to put around the perimeter of the window. What is the greatest window area that could be made with a perimeter of 24 feet? What is the smallest possible window area? Draw models to support your conclusions.



$$\text{Largest Window} = 24 \times 24 = 576$$

$$\text{Smallest Window} = 24 \times 24 = 576$$

3. At another theater, workers have to cut a new trap door. The door can be no more than 130 square feet in area, with whole-number side lengths. They have to bring in 3 items to the stage. The first item is 6 feet, 5 inches wide and 8 feet, 9 inches long. The second item is 13 feet, 4 inches wide and 7 feet, 8 inches long. The third item is 5 feet, 6 inches wide and 12 feet, 4 inches long. What size of trap door would you recommend? What is the perimeter of your trap door? Explain your math reasoning. Show your work.

$$130$$

Name _____

CRITICAL AREA

Geometry, Measurement, and Data

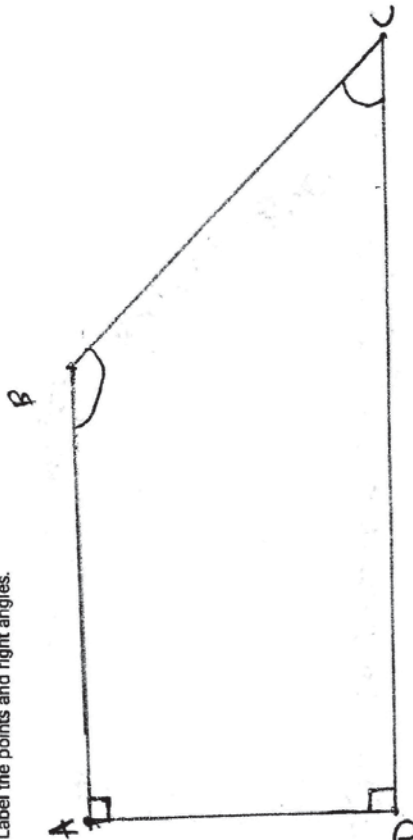
**CRITICAL
AREA**

Community Playground

James and Marvin volunteer to help build a playground in their neighborhood. Use geometry and measurement to solve each problem.

1. James sketches a design for a fence around the playground. The sketch has four points, A , B , C , D . It has 2 right angles, 1 obtuse angle, and 1 acute angle that measures 45° .

- a. Use a protractor to draw the design of the fence. Label the points and right angles.



- b. Name the two line segments that form the obtuse angle. Use a protractor to find the angle measure.

~~AB, BC~~ 135°

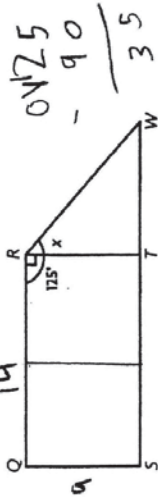
- c. Name the angle that forms the acute angle.

 $\angle BCD$

- d. Name any perpendicular lines in your sketch.

$$\overline{AD} \perp \overline{DC} \quad \overline{AD} \perp \overline{AB}$$

2. Marvin cuts this piece of wood along line RT to form the base of a birdhouse.



- a. What is the angle measure of x ? Write an equation to solve.

$$\begin{array}{r} 35^\circ \\ \hline 125 - 90 = x \\ x = 35 \end{array}$$

$$x = 35$$

- b. Draw a line that is parallel to line QS to form a line of symmetry.
Explain how you know the base of the birdhouse has a line of symmetry.

I knew because they were the same on both sides.

- c. Side QR measures 14 inches. Side QS measures 9 inches. Use a formula to find both the perimeter and area of the base of the birdhouse. Show your work.

$$\begin{array}{r} 126 \text{ in.} \times 9 \\ \hline 1134 \end{array}$$

$$\begin{array}{r} 81 \\ 99 \overline{) 8199} \\ \underline{81} \\ 0 \end{array}$$

$$\frac{99}{f} \mid \infty$$

28
18
—
up Gimpri meter

- d. Is the birdhouse base a parallelogram? Explain.

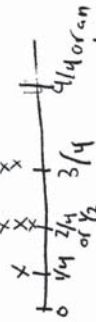
Yes it is. Because there is two sides of parallel lines and two sides of equal length.

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3. The data in the chart shows the lengths of nails Marvin uses to build his birdhouse.



- a. Make a line plot to show the data.



- b. What is the difference between the longest and shortest nails Marvin uses? Show your work.

$$\frac{3}{4} - \frac{1}{4} = \frac{2}{4} \text{ or } \frac{1}{2} \text{ inch}$$

4. James draws this diagram for a fenced-in play area. The angle shows the opening for the gate. What is the measure of the angle in degrees? Write an equation to solve.



$$15 \times ? = 360$$

$$24^\circ$$

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5. Marvin has 4 quarts of plant food for the flower garden. He calculates that he needs 130 ounces to feed all of the plants.

- a. Does Marvin have enough plant food? Complete the table to solve. Explain your answer.

Quarts	Ounces
1	32
2	64
3	96
4	128

No, he doesn't have enough food. Marvin needs two more oz.

$$130 > 128$$

- b. Describe the relationship between the numbers in your table.

The relationship is I added 1 for the quarts and 32 for the ounces. The second number in each pair is 32 x greater than the first number.

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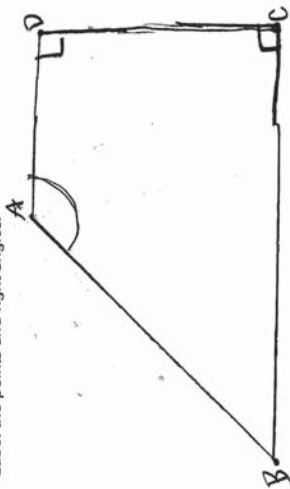
CRITICAL
AREA

Community Playground

James and Marvin volunteer to help build a playground in their neighborhood. Use geometry and measurement to solve each problem.

- James sketches a design for a fence around the playground. The sketch has four points, A, B, C, D. It has 2 right angles, 1 obtuse angle, and 1 acute angle that measures 45° .

- Use a protractor to draw the design of the fence. Label the points and right angles.



- Name the two line segments that form the obtuse angle. Use a protractor to find the angle measure.

AD, AB

- Name the angle that forms the acute angle.

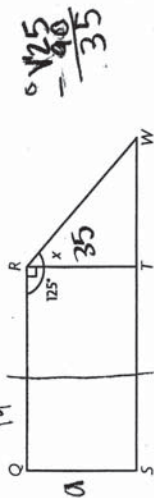
$\angle BCD$

- Name any perpendicular lines in your sketch.

$DC \perp BC$

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- Marvin cuts this piece of wood along line RT to form the base of a birdhouse.



- What is the angle measure of x ? Write an equation to solve.

$$125 - x = 35$$

$$x = 35$$

- Draw a line that is parallel to line QS to form a line of symmetry. Explain how you know the base of the birdhouse has a line of symmetry.

Because they're the same on both sides.

- Side QR measures 14 inches. Side QS measures 9 inches.

Use a formula to find both the perimeter and area of the base of the birdhouse. Show your work.

$$\begin{array}{r} 14 \\ \times 9 \\ \hline 126 \end{array}$$

$$46 = P$$

$$126 = A$$

- Is the birdhouse base a parallelogram? Explain.

yes, because pairs of parallel sides.

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3. The data in the chart shows the lengths of nails Marvin uses to build his birdhouse.

Lengths of Nails (in.)									
$\frac{1}{2}$	$\frac{1}{4}$	$\frac{1}{2}$	$\frac{3}{4}$	$\frac{1}{4}$	$\frac{3}{4}$	$\frac{1}{2}$	$\frac{1}{4}$	$\frac{1}{2}$	$\frac{1}{2}$

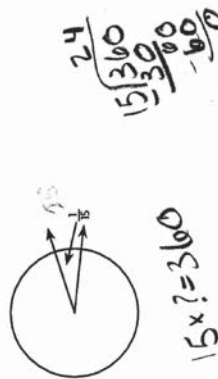
- a. Make a line plot to show the data.



- b. What is the difference between the longest and shortest nails Marvin uses? Show your work.

$$\frac{3}{4} - \frac{1}{4} = \frac{2}{4} = \frac{1}{2}$$

4. James draws this diagram for a fenced-in play area. The angle shows the opening for the gate. What is the measure of the angle in degrees? Write an equation to solve.



5. Marvin has 4 quarts of plant food for the flower garden. He calculates that he needs 130 ounces to feed all of the plants.

- a. Does Marvin have enough plant food? Complete the table to solve. Explain your answer.

Quarts	ounces
1	32
2	64
3	96
4	128

no he only has 128 and he needs 130 he 2 ounces short.

- b. Describe the relationship between the numbers in your table.

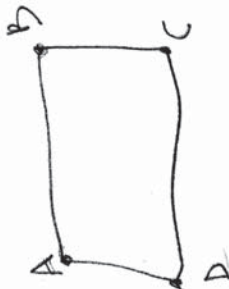
I added one for the quarts and 32 for the ounces

**CRITICAL
AREA****Community Playground**

James and Marvin volunteer to help build a playground in their neighborhood. Use geometry and measurement to solve each problem.

1. James sketches a design for a fence around the playground. The sketch has four points, A, B, C, D. It has 2 right angles, 1 obtuse angle, and 1 acute angle that measures 45° .

- a. Use a protractor to draw the design of the fence. Label the points and right angles.



- b. Name the two line segments that form the obtuse angle. Use a protractor to find the angle measure.

7°

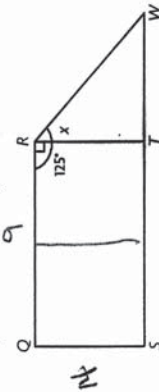
- c. Name the angle that forms the acute angle.

45°

- d. Name any perpendicular lines in your sketch.

$\overline{AD} \perp \overline{BC}$

2. Marvin cuts this piece of wood along line $\overline{RT}$ to form the base of a birdhouse.



- a. What is the angle measure of x ? Write an equation to solve.

45°
 $90^\circ + 45^\circ + 45^\circ$

- b. Draw a line that is parallel to line $\overline{QS}$ to form a line of symmetry. Explain how you know the base of the birdhouse has a line of symmetry.

it is a rectangle

- c. Side $\overline{QR}$ measures 14 inches. Side $\overline{QS}$ measures 9 inches. Use a formula to find both the perimeter and area of the base of the birdhouse. Show your work.

$$\begin{array}{r} 14 \\ 9 \\ \hline 23 \end{array}$$

$$14 + 9 + 14 + 9 = 46$$

$$23 + 23 = 46$$

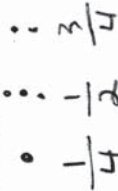
- d. Is the birdhouse base a parallelogram? Explain.

yes
sides are parallel

3. The data in the chart shows the lengths of nails Marvin uses to build his birdhouse.

Lengths of Nails (in.)				
$\frac{1}{2}$	$\frac{1}{4}$	$\frac{3}{4}$	$\frac{3}{4}$	$\frac{1}{2}$

- a. Make a line plot to show the data.



- b. What is the difference between the longest and shortest nails Marvin uses? Show your work.

$$\frac{3}{4} - \frac{1}{4} = \frac{2}{4}$$

4. James draws this diagram for a fenced-in play area. The angle shows the opening for the gate. What is the measure of the angle in degrees? Write an equation to solve.



$$\begin{array}{r} 120 \\ 15 \overline{) 180} \\ \underline{15} \\ 30 \end{array}$$

120°

5. Marvin has 4 quarts of plant food for the flower garden. He calculates that he needs 130 ounces to feed all of the plants.

- a. Does Marvin have enough plant food? Complete the table to solve. Explain your answer.

Quarts	
1	32
2	64
3	98
4	140

Yes

- b. Describe the relationship between the numbers in your table.

$$+ 32$$

Name _____

CRITICAL AREA

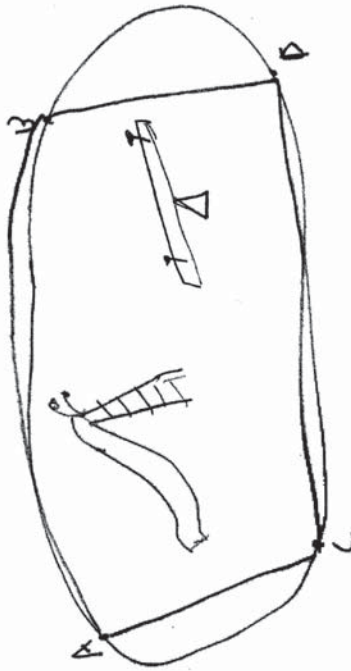
Geometry, Measurement, and Data

Community Playground

James and Marvin volunteer to help build a playground in their neighborhood. Use geometry and measurement to solve each problem.

1. James sketches a design for a fence around the playground. The sketch has four points, A, B, C, D. It has 2 right angles, 1 obtuse angle, and 1 acute angle that measures 45° .

- a. Use a protractor to draw the design of the fence. Label the points and right angles.



- b. Name the two line segments that form the obtuse angle. Use a protractor to find the angle measure.



- c. Name the angle that forms the acute angle.

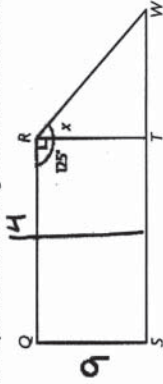


- d. Name any perpendicular lines in your sketch.

AC CD



2. Marvin cuts this piece of wood along line RT to form the base of a birdhouse.



- a. What is the angle measure of x ? Write an equation to solve.

$$125^\circ$$

- b. Draw a line that is parallel to line QS to form a line of symmetry. Explain how you know the base of the birdhouse has a line of symmetry.

cut in half

- c. Side QR measures 14 inches. Side QS measures 9 inches. Use a formula to find both the perimeter and area of the base of the birdhouse. Show your work.

$$\begin{array}{r} 14 \\ + 9 \\ \hline 23 \end{array}$$

- d. Is the birdhouse base a parallelogram? Explain.

yes

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3. The data in the chart shows the lengths of nails Marvin uses to build his birdhouse.

Lengths of Nails (in.)				
$\frac{1}{2}$	$\frac{1}{4}$	$\frac{1}{2}$	$\frac{3}{4}$	$\frac{1}{2}$

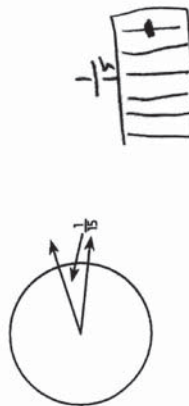
- a. Make a line plot to show the data.



- b. What is the difference between the longest and shortest nails Marvin uses? Show your work.



4. James draws this diagram for a fenced-in play area. The angle shows the opening for the gate. What is the measure of the angle in degrees? Write an equation to solve.



5. Marvin has 4 quarts of plant food for the flower garden. He calculates that he needs 130 ounces to feed all of the plants.

- a. Does Marvin have enough plant food? Complete the table to solve. Explain your answer.

Quarts	
1	130
2	260
3	390
4	420

$$\begin{array}{r} 130 \\ 130 \\ \hline 260 \\ 130 \\ \hline 390 \\ 130 \\ \hline 420 \end{array}$$

- b. Describe the relationship between the numbers in your table.

get bigger

Name _____

End of Year Test
Page 1

Choose the correct answer.

1. Juan plans to use a strategy to find 12×380 . Which expression shows a strategy he could use?

(A) $3 \times 4 \times 38$
 (B) $4 \times 4 \times 380$
 (C) $12 \times 0 \times 380$
 (D) $3 \times 4 \times 380$

2. Kate's family saved 2,573 pennies last year. Zoe's family saved 3 times as many. How many pennies did Zoe's family save last year?

(A) 8,519
 (B) 7,729
 (C) 7,719
 (D) 7,519

3. A factory can make 3,848 pencils in one hour. Which is the **best** estimate of how many pencils can be made in 4 hours?

(A) 160,000 pencils
 (B) 16,000 pencils
 (C) 12,000 pencils
 (D) 1,600 markers

4. Mario made this model to find the product of a 3-digit number and a 1-digit number.

400	80	2
8		

What multiplication sentence represents Mario's model?

(A) $8 \times 402 = 3,216$
 (B) $8 \times 428 = 3,424$
 (C) $8 \times 480 = 3,840$
 (D) $8 \times 482 = 3,856$

5. Julia lives 0.3 mile from the park. Which fraction is equivalent to 0.3?

(A) $\frac{1}{3}$
 (B) $\frac{3}{10}$
 (C) $\frac{3}{100}$
 (D) $\frac{0}{3}$

Chapter Resources
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13-35

End of Year Test

Name _____

End of Year Test
Page 2

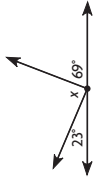
6. Tony rode his bicycle $3\frac{7}{10}$ miles to school. What is this distance written as a decimal?

(A) 0.037 mile
 (B) 0.37 mile
 (C) 3.7 miles
 (D) 37 miles

7. Craig hiked for $\frac{7}{10}$ mile and stopped to take pictures. Then he hiked for another $\frac{25}{100}$ mile. How far did he hike in all?

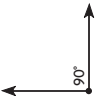
(A) $\frac{32}{100}$ mile
 (B) $\frac{70}{100}$ mile
 (C) $\frac{85}{100}$ mile
 (D) $\frac{95}{100}$ mile

8. What is the measure of the unknown angle in the figure?



(A) 180°
 (B) 92°
 (C) 88°
 (D) 44°

9. Caroline drew the angle below.



What name should Caroline give her angle?

(A) obtuse angle
 (B) acute angle
 (C) right angle
 (D) straight angle

10. Eric put two angles together to form a straight angle. One angle measures 115° . What is the measure of the other angle?

(A) 65°
 (B) 75°
 (C) 85°
 (D) 95°

Chapter Resources
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13-36

End of Year Test

Name _____		End of Year Test Page 3
11. How many degrees are in an angle that turns through $\frac{1}{3}$ of a circle?	☐ A 360° ☐ B 180° ☒ C 120° ☐ D 90°	
12. Irene bought $\frac{9}{16}$ pound of wheat flour and $\frac{4}{16}$ pound of rye flour to use in a bread recipe. How much flour did Irene buy in all?	☐ A $\frac{15}{16}$ pound ☒ B $\frac{13}{16}$ pound ☐ C $\frac{1}{2}$ pound ☐ D $\frac{13}{32}$ pound	
13. Dan has a piece of wood that is $\frac{9}{10}$ meter long. He uses $\frac{6}{10}$ meter of the piece of wood for a model boat he is building. How much of the piece of wood does Dan have left?	☐ A $\frac{15}{10}$ meters ☐ B $\frac{3}{5}$ meter ☐ C $\frac{5}{10}$ meter ☒ D $\frac{3}{10}$ meter	
14. One of the hiking trails at a state park is $\frac{14}{3}$ miles long. Which mixed number shows the length of the hiking trail?	☒ A $4\frac{2}{3}$ miles ☐ B $4\frac{1}{3}$ miles ☐ C $3\frac{2}{3}$ miles ☐ D $3\frac{1}{3}$ miles	
15. Emma has $5\frac{3}{8}$ pounds of potato salad and $2\frac{7}{8}$ pounds of egg salad for a picnic. How many more pounds of potato salad than egg salad does Emma have?	☐ A 3 pounds ☐ B $2\frac{3}{4}$ pounds ☒ C $2\frac{1}{2}$ pounds ☐ D $2\frac{1}{4}$ pounds	



Name _____		End of Year Test Page 4
16. Anna has 32 red beads, 16 blue beads, and 8 green beads. She wants to put an equal number of each kind of bead on necklaces she is making. How many of each kind of bead can Anna put on each necklace?	☐ A 8 ☐ B 2, 4 or 8 ☐ C 2 or 4 ☒ D 1, 2, 4, or 8	
17. Paula and Karen are playing a game. Paula counts by 4s. Karen counts by 5s. They try to pace the counting so they will say the first common number together. What is the first number they both say together?	☒ A 20 ☐ B 15 ☐ C 12 ☐ D 5	
18. Jeff's teacher writes a list of numbers on the board. She asks Jeff to circle the prime number. Which number should Jeff circle?	☐ A 6 ☐ B 10 ☒ C 13 ☐ D 15	
19. Ming writes a number pattern on a slip of paper and hands it to his friend Jack. 24, 21, 23, 20, 22, 19, 21, 18 Jack writes the next number in the pattern and hands the paper back to Ming. What number should Jack write?	☐ A 19 ☒ B 20 ☐ C 21 ☐ D 22	
20. Dawn's family is taking a 3-day vacation to visit her cousins. How many hours will they be away?	☐ A 24 hours ☐ B 36 hours ☐ C 48 hours ☒ D 72 hours	



Name _____

End of Year Test
Page 5

21. The table shows a pattern for two units of customary capacity.

1	4
2	8
3	12
4	16

Which are the best labels for each column?

A Gallons, Cups

B Quarts, Cups

C Pints, Cups

D Cups, Fluid Ounces

22. Carlos and his family left for the amusement park at 8:35 A.M. The trip took 1 hour 55 minutes. What time did they arrive?

A 9:35 A.M.

B 10:15 A.M.

C 10:30 A.M.

D 10:45 A.M.

23. Sandy cut three pieces of yarn to use for her art project. One piece was 1 foot 8 inches long, one was 10 inches long, and one was 2 feet 6 inches long. How much yarn did Sandy use?

A 3 feet 12 inches

B 4 feet 10 inches

C 5 feet

D 5 feet 6 inches

24. A picture called a mosaic was made from 172,435 small clay tiles. What is the value of the digit 2 in 172,435?

A 200

B 2,000

C 20,000

D 200,000

25. Maya used number tiles to make the number 428,745. Then she changed two digits to make the number 427,845. Which statement about these numbers is correct?

A $428,745 < 427,845$

B $427,845 = 428,745$

C $427,845 > 428,745$

D $427,845 < 428,745$

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26. An amusement park had 56,437 visitors the first year and 48,319 visitors the second year it was open. What was the total number of visitors for both years?

A 114,756 visitors

B 104,756 visitors

C 104,746 visitors

D 94,746 visitors

27. Mika and Shelly were playing a video game. Mika scored 65,324 points. Shelly scored 46,789 points. How many more points did Mika score than Shelly?

A 28,645

B 28,535

C 18,645

D 18,535

28. The lunch room at Diane's school has a perimeter of 300 feet. The length of the room is 85 feet. What is the width of the room?

A 50 feet

B 65 feet

C 75 feet

D 150 feet

29. Patel made a rectangular garden in his family's backyard.

24 ft	14 ft
-------	-------

What is the perimeter of the garden?

A 336 feet

B 76 feet

C 48 feet

D 38 feet

30. Patrick drew this plan for a new walkway through his backyard.

How many square feet of bricks will Patrick need to cover the walkway?

A 168 square feet

B 90 square feet

C 78 square feet

D 52 square feet

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31. Philip is making a poster that is 36 inches long and 24 inches wide. He cuts out a rectangle that is 5 inches long and 12 inches wide from the poster. How much of the poster remains? (A) 140 square inches (B) 704 square inches (C) 804 square inches (D) 864 square inches	34. Marjorie's customers bought 94 bouquets at her flower shop for \$14 each. What is the total amount customers paid for the bouquets? (A) \$1,216 (B) \$1,306 (C) \$1,316 (D) \$1,416	35. Lonnie works weekends at his uncle's apple orchid. He has 47 baskets of apples to pack. Each basket holds 35 apples. How many apples in all will Lonnie pack? (A) 1,745 (B) 1,715 (C) 1,645 (D) 1,445
32. Which shows the best estimate to use to find 43×78? (A) $40 \times 70 = 2,800$ (B) $40 \times 80 = 3,200$ (C) $50 \times 70 = 3,500$ (D) $50 \times 80 = 4,000$	33. Chen can jump rope 60 times a minute. At that rate, how many jumps can he make in 9 minutes? (A) 620 (B) 540 (C) 520 (D) 500	36. Matt is making a picture frame from a piece of wood trim that is $\frac{27}{8}$ feet long. How can Matt rename the fraction as a mixed number? (A) $3\frac{3}{8}$ (B) $3\frac{3}{8}$ (C) $2\frac{1}{4}$ (D) $1\frac{3}{8}$
37. Suki named a fraction that was not a multiple of $\frac{3}{4}$. Which fraction could she have named? (A) $\frac{6}{4}$ (B) $\frac{9}{4}$ (C) $\frac{10}{4}$ (D) $\frac{12}{4}$	38. Larry rides his bike $\frac{5}{6}$ mile 4 times a week. How far does Larry ride his bike each week? (A) $3\frac{1}{3}$ miles (B) $3\frac{2}{3}$ miles (C) 4 miles (D) 20 miles	39. Jason's soccer practice lasts for $1\frac{1}{3}$ hours. He goes to practice 4 days a week. How much time in all does Jason spend at soccer practice? (A) $6\frac{2}{3}$ hours (B) $6\frac{1}{3}$ hours (C) $5\frac{2}{3}$ hours (D) $5\frac{1}{3}$ hours
40. At the beginning of the school year, 118 students are enrolled in 4th grade. The students are divided into 6 classes. Which is the best estimate of the number of students in each class? (A) 10 (B) 20 (C) 30 (D) 40	GO ON	
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36. Matt is making a picture frame from a piece of wood trim that is $\frac{27}{8}$ feet long. How can Matt rename the fraction as a mixed number? (A) $3\frac{3}{8}$ (B) $3\frac{3}{8}$ (C) $2\frac{1}{4}$ (D) $1\frac{3}{8}$	37. Suki named a fraction that was not a multiple of $\frac{3}{4}$. Which fraction could she have named? (A) $\frac{6}{4}$ (B) $\frac{9}{4}$ (C) $\frac{10}{4}$ (D) $\frac{12}{4}$	38. Larry rides his bike $\frac{5}{6}$ mile 4 times a week. How far does Larry ride his bike each week? (A) $3\frac{1}{3}$ miles (B) $3\frac{2}{3}$ miles (C) 4 miles (D) 20 miles
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41. The art teacher needs 70 markers for her classes. The markers come in packages of 15. What is the smallest number of packages of markers the art teacher will need to buy?

(A) 5
(B) 4
(C) 3
(D) 2

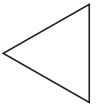
42. A movie theater sold 2,604 tickets in 6 days. They sold the same number of tickets each day. How many tickets did the theater sell each day?

(A) 404
(B) 434
(C) 443
(D) 534

43. A pencil company packs pencils in boxes of 8. How many boxes can they pack with 32,000 pencils?

(A) 40,000
(B) 4,000
(C) 400
(D) 40

44. Brad drew the figure below.



How many lines of symmetry does the figure have?

(A) 4
(B) 3
(C) 2
(D) 1

45. Connie drew the figure below as an example for her classmate.



Which of the following terms **best** describes the figure Connie drew?

(A) line segment
(B) line
(C) angle
(D) ray

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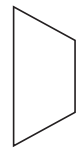
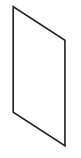
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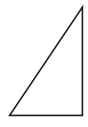
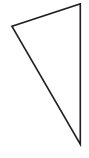
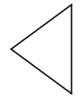
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46. A window is in the shape of a trapezoid with only 1 pair of parallel sides. Which figure could be the shape of the window?

(A) 
(B) 
(C) 
(D) 

47. A flag is in the shape of a right triangle. Which of the following could be the shape of the flag?

(A) 
(B) 
(C) 
(D) 

48. Andy walked $\frac{3}{4}$ of a mile to the post office and another $\frac{1}{2}$ mile to the supermarket. Which number is a common denominator for $\frac{3}{4}$ and $\frac{1}{2}$?

(A) 10
(B) 8
(C) 6
(D) 5

49. Simon bought $\frac{6}{8}$ of a pound of tuna salad for sandwiches. Which fraction is equivalent to $\frac{6}{8}$?

(A) $\frac{2}{4}$
(B) $\frac{1}{2}$
(C) $\frac{2}{3}$
(D) $\frac{12}{16}$

50. Anita mixes $\frac{3}{5}$ pound of peanuts with $\frac{3}{8}$ pound of raisins to make a snack. Which statement correctly compares the fractions?

(A) $\frac{3}{8} = \frac{3}{5}$
(B) $\frac{3}{8} > \frac{3}{5}$
(C) $\frac{3}{5} > \frac{3}{8}$
(D) $\frac{3}{5} < \frac{3}{8}$

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