Multiply with 2 and 4

> **You can skip count to help you find a product.**
>
> **Find the product.** 4×3
>
> **Step 1** Use cubes to model 4 groups of 3.
>
> **Step 2** Skip count by 3s four times to find how many in all.
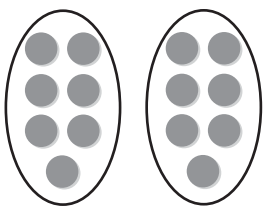>
> 3, 6, 9, 12
>
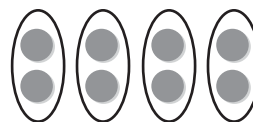> 4 groups of 3 is equal to **12**.
>
> So, $4 \times 3 = 12$.
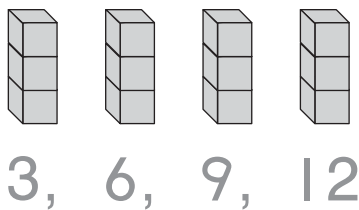
Write a multiplication sentence for the model.

1.

_____ $\times$ _____ = _____

2.

_____ $\times$ _____ = _____

Find the product.

3.
$$\begin{array}{r} 2 \\ \times\ 3 \\ \hline \end{array}$$

4.
$$\begin{array}{r} 4 \\ \times\ 8 \\ \hline \end{array}$$

5.
$$\begin{array}{r} 2 \\ \times\ 6 \\ \hline \end{array}$$

6.
$$\begin{array}{r} 4 \\ \times\ 1 \\ \hline \end{array}$$

7.
$$\begin{array}{r} 2 \\ \times\ 9 \\ \hline \end{array}$$

8.
$$\begin{array}{r} 2 \\ \times\ 2 \\ \hline \end{array}$$

9.
$$\begin{array}{r} 4 \\ \times\ 9 \\ \hline \end{array}$$

10.
$$\begin{array}{r} 2 \\ \times\ 5 \\ \hline \end{array}$$

11.
$$\begin{array}{r} 4 \\ \times\ 5 \\ \hline \end{array}$$

12.
$$\begin{array}{r} 4 \\ \times\ 7 \\ \hline \end{array}$$

What's My Number?

Solve each riddle.

1. I am a factor of 12. The other factor is 3. What number am I?

   _____

2. I am a factor of 12. The other factor is 2. What number am I?

   _____

3. I am a product. One of my factors is 2. The other factor is 1 greater than 4. What number am I?

   _____

4. I am a product. One of my factors is 7. The sum of my factors equals 11. What number am I?

   _____

5. I am a factor of 28. The other factor is 4. What number am I?

   _____

6. I am a factor of 32. The other factor is 4. What number am I?

   _____

7. I am a product. Both of my factors are the same number. The sum of my factors is 4. What number am I?

   _____

8. I am a product. One of my factors is 3. The other factor is 2 times as great. What number am I?

   _____

9. I am a factor of 18. The other factor is 9. What number am I?

   _____

10. I am a product. One of my factors is 9. The sum of my two factors is 13. What number am I?

    _____

11. I am a number that is four times the product of 2 and 3. One of my factors is 4. What is my other factor?

    _____

12. I am a number that is double the product of 2 and 7. One of my factors is 7. What is my other factor?
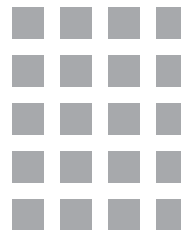
    _____

Multiply with 5 and 10

You can use an array to multiply with 5.

Find the product. 5×4

Step 1 Make an array to show 5×4.
Show 5 rows of 4 tiles.

Step 2 Count the tiles.
5 rows of 4 tiles = 20 tiles

So, $5 \times 4 =$ **20**.

You can use doubles to multiply with 10.

Find the product. 6×10

Think: $5 + 5 = 10$

Multiply with 5. $\qquad 6 \times 5 =$ **30**

Then double the product. $\qquad$ **30** $+ 30 =$ **60**

So, $6 \times 10 =$ **60**.

Find the product.

1. $2 \times 5 =$ _____ **2.** $10 \times 2 =$ _____ **3.** $5 \times 5 =$ _____ **4.** $5 \times 1 =$ _____

5. $10 \times 1 =$ _____ **6.** $10 \times 5 =$ _____ **7.** $3 \times 5 =$ _____ **8.** $10 \times 7 =$ _____

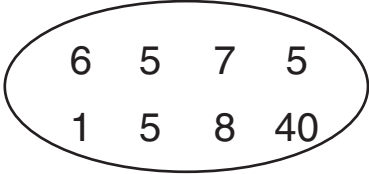**9.** $\begin{array}{r} 10 \\ \times\ 4 \\ \hline \end{array}$ **10.** $\begin{array}{r} 6 \\ \times\ 5 \\ \hline \end{array}$ **11.** $\begin{array}{r} 9 \\ \times\ 5 \\ \hline \end{array}$ **12.** $\begin{array}{r} 10 \\ \times\ 3 \\ \hline \end{array}$

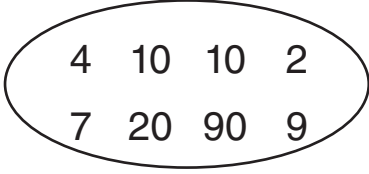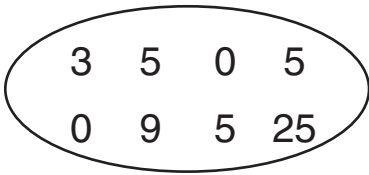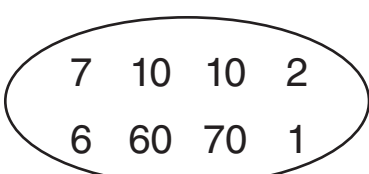**13.** $\begin{array}{r} 5 \\ \times\ 2 \\ \hline \end{array}$ **14.** $\begin{array}{r} 10 \\ \times\ 6 \\ \hline \end{array}$ **15.** $\begin{array}{r} 8 \\ \times\ 5 \\ \hline \end{array}$ **16.** $\begin{array}{r} 10 \\ \times\ 8 \\ \hline \end{array}$

Name _____

Unknown Numbers

Use the numbers in each oval to complete four different number sentences. Use each number in the oval only once.

1. $5 \times \square = \square$

$\square \times \square = 30$

$5 \times \square = \square$

$\square \times \square = 35$

6   5   7   5
1   5   8   40

2. $\square \times \square = 70$

$10 \times \square = \square$

$10 \times \square = \square$

$\square \times \square = 40$

4   10   10   2
7   20   90   9

3. $5 \times \square = \square$

$5 \times \square = \square$

$\square \times \square = 45$

$\square \times \square = 15$

3   5   0   5
0   9   5   25

4. $\square \times \square = 20$

$10 \times \square = \square$

$\square \times \square = 10$

$10 \times \square = \square$

7   10   10   2
6   60   70   1

5. **Write Math** ▸ How are all of the products in Exercise 4 alike?

_____

_____

Multiply with 3 and 6

You can use a number line to multiply with 3 or 6.

Find the product. 6×3
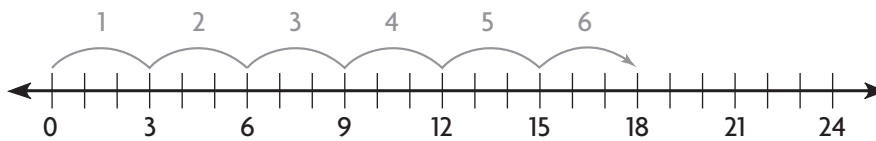
The factor 6 tells you to make **6 jumps**.

The factor 3 tells you each jump should be **3 spaces**.

Step 1 Start at 0.
Make 6 jumps of 3 spaces.

Step 2 The number you land on is the product.

So, $6 \times 3 = $ **18**.

Find the product.

1. $3 \times 1 = $ _____

2. _____ $= 2 \times 6$

3. $8 \times 3 = $ _____

4. $6 \times 6 = $ _____

5. $3 \times 0 = $ _____

6. $5 \times 6 = $ _____

7. _____ $= 3 \times 5$

8. $9 \times 6 = $ _____

9.
$$\begin{array}{r} 3 \\ \times\ 9 \\ \hline \end{array}$$

10.
$$\begin{array}{r} 6 \\ \times\ 4 \\ \hline \end{array}$$

11.
$$\begin{array}{r} 7 \\ \times\ 3 \\ \hline \end{array}$$

12.
$$\begin{array}{r} 1 \\ \times\ 6 \\ \hline \end{array}$$

13.
$$\begin{array}{r} 10 \\ \times\ 6 \\ \hline \end{array}$$

14.
$$\begin{array}{r} 3 \\ \times\ 6 \\ \hline \end{array}$$

15.
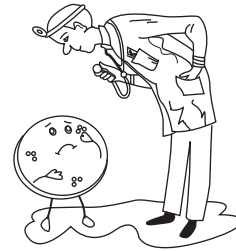$$\begin{array}{r} 6 \\ \times\ 7 \\ \hline \end{array}$$

16.
$$\begin{array}{r} 4 \\ \times\ 3 \\ \hline \end{array}$$

Products in Parentheses

For each exercise, multiply the numbers inside the parentheses first. Then add or subtract.

Find the answer in the code box. Write the code letter on the line above the exercise number at the bottom of the page to answer the riddle.

CODE

A	B	C	E	F	I	L	M	N	O	R	S	T	U	W	Y
7	8	9	10	11	13	14	15	16	20	21	28	29	31	33	35

1. $(5 \times 2) + (1 \times 3) =$ _____

2. $(6 \times 4) + (5 \times 1) =$ _____

3. $(7 \times 3) - (2 \times 5) =$ _____

4. $(3 \times 6) - (4 \times 2) =$ _____

5. $(2 \times 3) + (4 \times 2) =$ _____

6. $(9 \times 6) - (5 \times 5) =$ _____

7. $(9 \times 3) - (6 \times 3) =$ _____

8. $(1 \times 3) + (3 \times 6) =$ _____

9. $(3 \times 5) + (8 \times 2) =$ _____

10. $(3 \times 9) - (6 \times 2) =$ _____

11. $(3 \times 8) - (4 \times 4) =$ _____

12. $(4 \times 2) + (9 \times 3) =$ _____

Why did the cookie go to the doctor?

__ __   __ __ __ __   __ __ __ __ __ __
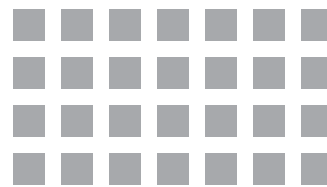1 2   3 4 5 6   7 8 9 10 11 12

Name _____

Algebra • Distributive Property

A garden has 4 rows of 7 corn stalks. How many corn stalks in all are in the garden?

You can use the **Distributive Property** to break an array into smaller arrays to help you find the answer.
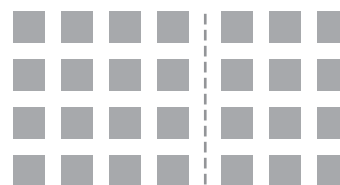
Find 4 × 7.

Step 1 Make an array to show 4 rows of 7.

4 rows of 7, or 4 × 7

Step 2 Break apart the array to make two smaller arrays for facts you know.

Step 3 Write the multiplication for the new arrays. Multiply and then add the products to find the answer.

4 × 4   + 4 × 3
16   +   12   = 28

4 × 7 = (4 × 4) + (4 × 3)
4 × 7 =   16   +   12
4 × 7 =   28

So, there are **28** corn stalks in all in the garden.

Write one way to break apart the array.
Then find the product.

1.

2.

_____   _____
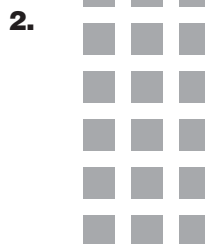
United Arrays

Draw an array for each clue. Then use the arrays to solve each problem.

1. Craig spent $27 to buy 3 calendars. The next day, he spent another $18 for more calendars. Each calendar cost the same amount. How many calendars did Craig buy?

_____

2. On Monday, Mrs. Jones spent $32 on 4 books. On Tuesday, she spent $16 on more books. Each book cost the same amount. How many books did Mrs. Jones buy?

_____

3. Hailey spent $12 to buy 2 fish. Her cousin spent double the amount on fish. Each fish cost the same amount. How many fish do Hailey and her cousin have altogether?

_____

4. Write Math ► **Explain** how you used the arrays to solve each problem.

_____
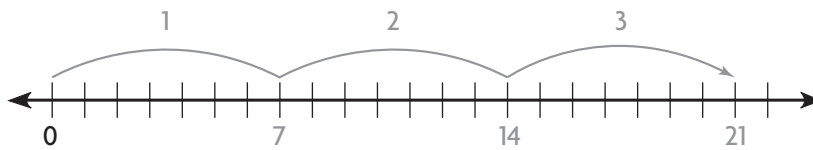
_____

Multiply with 7

Pablo is making gift bags for his party. He puts 7 pencils in each bag. How many pencils will he need for 3 gift bags?

Find 3 × 7.

You can use a number line to find the product.

Step 1 Draw a number line.

Step 2 Start at 0. Draw 3 jumps of **7**.

$3 \times 7 = 21$

So, Pablo will need __21__ pencils for 3 gift bags.

Find the product.

1. _____ $= 0 \times 7$ **2.** $5 \times 7 =$ _____   **3.** $4 \times 7 =$ _____   **4.** _____ $= 6 \times 7$

5. $7 \times 7 =$ _____   **6.** _____ $= 7 \times 9$ **7.** $1 \times 7 =$ _____   **8.** _____ $= 7 \times 2$

9. $\begin{array}{r} 10 \\ \times\ 7 \\ \hline \end{array}$ **10.** $\begin{array}{r} 7 \\ \times\ 8 \\ \hline \end{array}$ **11.** $\begin{array}{r} 7 \\ \times\ 0 \\ \hline \end{array}$ **12.** $\begin{array}{r} 7 \\ \times\ 3 \\ \hline \end{array}$ **13.** $\begin{array}{r} 9 \\ \times\ 7 \\ \hline \end{array}$

14. $\begin{array}{r} 6 \\ \times\ 7 \\ \hline \end{array}$ **15.** $\begin{array}{r} 7 \\ \times\ 5 \\ \hline \end{array}$ **16.** $\begin{array}{r} 1 \\ \times\ 7 \\ \hline \end{array}$ **17.** $\begin{array}{r} 7 \\ \times\ 7 \\ \hline \end{array}$ **18.** $\begin{array}{r} 4 \\ \times\ 7 \\ \hline \end{array}$

Search for Unknown Factors

**Find the unknown factor. Then write the word form of
the unknown factor on the line below the problem.**

1. ☐ × 7 = 35

_____

2. ☐ × 7 = 7

_____

3. 7 × ☐ = 70

_____

4. ☐ × 7 = 63

_____

5. ☐ × 7 = 0

_____

6. ☐ × 7 = 56

_____

7. ☐ × 7 = 42

_____

8. ☐ × 7 = 28

_____

9. ☐ × 7 = 14

_____

10. ☐ × 7 = 49

_____

**Find each word form for Exercises 1–10 in the word search
below. Words can be found written horizontally, vertically,
and diagonally, as well as forward and backward.**

F	I	V	E	T	O	X	E
O	W	N	H	M	W	I	I
Q	E	R	I	R	T	S	G
F	E	I	R	N	E	V	H
E	O	U	V	F	E	N	T
J	O	Y	T	E	N	M	O
F	I	N	E	V	E	S	N
F	Z	E	R	O	I	Z	T

Algebra • Associative Property of Multiplication

You can use the **Associative Property of Multiplication** to multiply 3 factors. If you change the grouping of factors, the product remains the same.
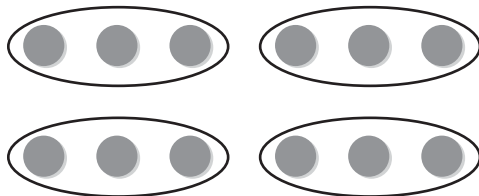
Find 4 × (3 × 1).

Step 1 Start inside the parentheses. Make 3 groups of 1 counter.

(3 × 1)

Step 2 Multiply by 4, the number outside the parentheses. Make 4 groups of the counters in Step 1.

4 × (3 × 1)

Step 3 Count the total number of counters. 12 counters

Find (4 × 3) × 1.

Step 1 Start inside the parentheses. Make 4 groups of 3 counters.

(4 × 3)

Step 2 Multiply by 1, the number outside the parentheses. Make 1 group of the counters in Step 1.

(4 × 3) × 1

Step 3 Count the total number of counters. 12 counters

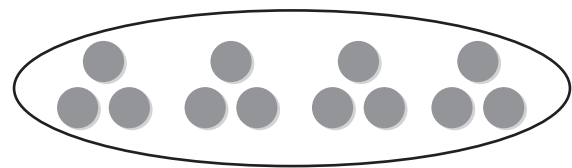So, 4 × (3 × 1) = **12** and (4 × 3) × 1 = **12**.

Write another way to group the factors. Then find the product.

1. (2 × 3) × 2

_____

2. 2 × (4 × 2)

_____

3. 2 × (3 × 1)

_____

4. 5 × (7 × 1)

_____

5. 8 × (4 × 1)

_____

6. 2 × (2 × 6)

_____

Matching Factors and Products

Complete the number sentence in Column A. Then circle
the correct product in Column B. In Column C, use 3
factors to write a number sentence for the product in
Column B that is not circled.

Column A	Column B	Column C
1. $(9 \times 1) \times 2 =$ _____	18 14	
2. $7 \times (2 \times 3) =$ _____	42 16	
3. $8 \times (2 \times 2) =$ _____	48 32	
4. $(1 \times 2) \times 7 =$ _____	14 36	
5. $1 \times (3 \times 2) =$ _____	6 5	
6. $3 \times (8 \times 1) =$ _____	12 24	
7. $(3 \times 2) \times 6 =$ _____	36 40	
8. $(3 \times 3) \times 5 =$ _____	54 45	
9. $9 \times (3 \times 1) =$ _____	27 35	
10. $(7 \times 1) \times 4 =$ _____	60 28	

11. | Write Math | ▶   **Explain** how you decided which factors to group in Column C.

_____

Algebra • Patterns on the Multiplication Table

You can use a multiplication table to explore number patterns.

Step 1 Shade the columns for 5 and 10 on the multiplication table.

Step 2 Look for patterns in the shaded numbers.

- The products in the 5s column end in 0 or 5.
- The products in the 5s column repeat—even, odd.
- All the products in the 10s column are even.

×	0	1	2	3	4	5	6	7	8	9	10
0	0	0	0	0	0	0	0	0	0	0	0
1	0	1	2	3	4	5	6	7	8	9	10
2	0	2	4	6	8	10	12	14	16	18	20
3	0	3	6	9	12	15	18	21	24	27	30
4	0	4	8	12	16	20	24	28	32	36	40
5	0	5	10	15	20	25	30	35	40	45	50
6	0	6	12	18	24	30	36	42	48	54	60
7	0	7	14	21	28	35	42	49	56	63	70
8	0	8	16	24	32	40	48	56	64	72	80
9	0	9	18	27	36	45	54	63	72	81	90
10	0	10	20	30	40	50	60	70	80	90	100

Is the product even or odd? Write *even* or *odd*.

1. 5×5 _____   **2.** 6×4 _____   **3.** 7×1 _____   **4.** 8×6 _____

Use the multiplication table. Describe a pattern you see.

5. in the row for 2

_____

_____

_____

_____

6. in the column for 3

_____

_____

_____

_____

Pattern Products

Follow the directions for the multiplication table.

1. Shade all of the products in the row and column for 2.

2. Circle all of the products in the row and column for 4.

3. Describe two patterns in the products that are shaded or circled.

   _____

   _____

   _____

   _____

×	0	1	2	3	4	5	6	7	8	9	10
0	0	0	0	0	0	0	0	0	0	0	0
1	0	1	2	3	4	5	6	7	8	9	10
2	0	2	4	6	8	10	12	14	16	18	20
3	0	3	6	9	12	15	18	21	24	27	30
4	0	4	8	12	16	20	24	28	32	36	40
5	0	5	10	15	20	25	30	35	40	45	50
6	0	6	12	18	24	30	36	42	48	54	60
7	0	7	14	21	28	35	42	49	56	63	70
8	0	8	16	24	32	40	48	56	64	72	80
9	0	9	18	27	36	45	54	63	72	81	90
10	0	10	20	30	40	50	60	70	80	90	100

4. **Write Math** ▶ Why are some numbers both shaded and circled?

   _____

   _____

5. **Stretch Your Thinking** Shade the row and column for 8. Compare the products to the products you have already shaded or circled. What patterns do you see?

   _____

   _____

   _____

Multiply with 8

You can break apart arrays to multiply with 8.

Candace works at a candle shop.
She places candles in a box for display.
The box has 7 rows of 8 candles.
How many candles are in the box in all?

You can break apart an array to find 7×8.
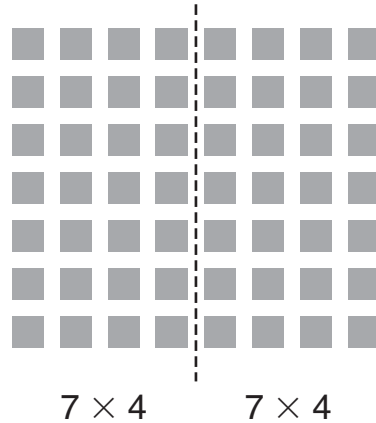
Step 1 Draw 7 rows of 8 squares.

Step 2 Draw a dashed line to break apart the array into two smaller arrays to show facts you know.

$7 \times 8 = (7 \times 4) + (7 \times 4)$

$7 \times 8 = \quad 28 \quad + \quad 28$

$7 \times 8 = \qquad 56$

So, there are **56** candles in the box.

$$7 \times 4 \qquad 7 \times 4$$

Find the product.

1. $3 \times 8 =$ _____ **2.** _____ $= 0 \times 8$ **3.** $2 \times 8 =$ _____ **4.** $4 \times 8 =$ _____

5. _____ $= 9 \times 8$ **6.** $5 \times 8 =$ _____ **7.** $8 \times 10 =$ _____ **8.** _____ $= 8 \times 8$

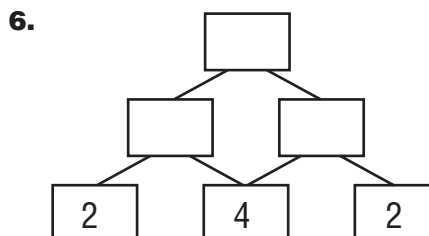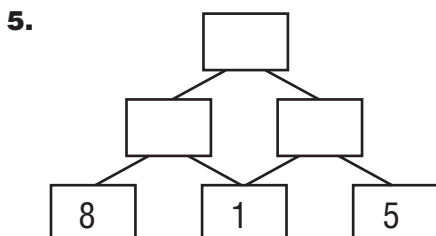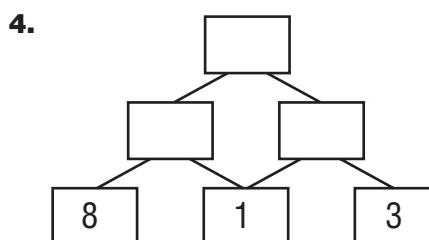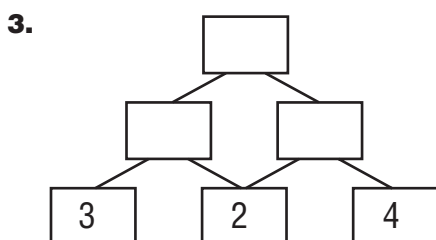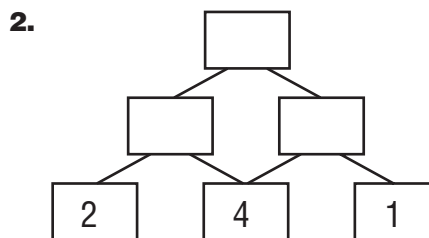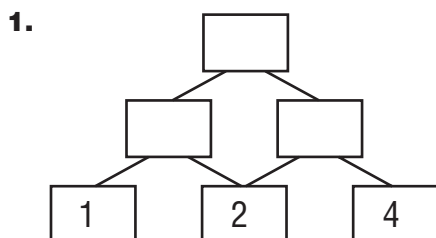**9.** $\begin{array}{r} 7 \\ \times\ 8 \\ \hline \end{array}$ **10.** $\begin{array}{r} 10 \\ \times\ 8 \\ \hline \end{array}$ **11.** $\begin{array}{r} 8 \\ \times\ 4 \\ \hline \end{array}$ **12.** $\begin{array}{r} 8 \\ \times\ 3 \\ \hline \end{array}$ **13.** $\begin{array}{r} 1 \\ \times\ 8 \\ \hline \end{array}$

Name _____

Product Pyramids

The number in each box of a pyramid is the product of the two numbers below it. Use multiplication to find the missing numbers in each product pyramid.

1.

| 1 | 2 | 4 |

2.

| 2 | 4 | 1 |

3.

| 3 | 2 | 4 |

4.

| 8 | 1 | 3 |

5.

| 8 | 1 | 5 |

6.

| 2 | 4 | 2 |

7.

| 9 | 1 | 8 |

8.

| 5 | 2 | 4 |
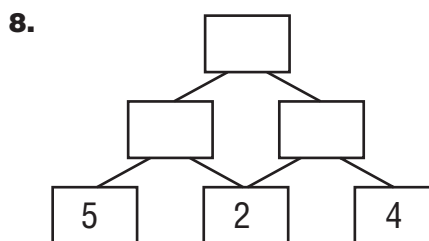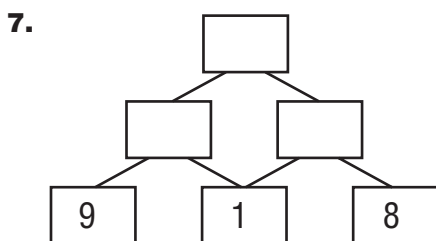
9. **Write Math** ➤ Haylie's work is shown on the right. Is it correct? If not, find her mistake and write a correct answer.

_____

_____

To find 8 × 9, I can find 4 × 9 then double the product.
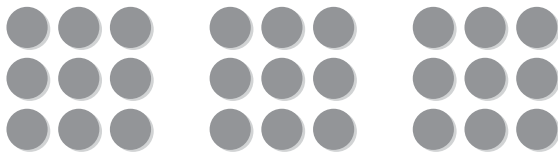4 × 9 = 32
32 + 32 = 64
So, 8 × 9 = 64.

Multiply with 9

Ana goes to the pet store to buy a fish. The store has 3 fish tanks. Each tank has 9 fish. How many fish in all are in the tanks?

You can use counters to find the product.

Find 3 × 9.

Step 1 Make 3 groups of **9** counters.

Step 2 Skip count by 9s to find the total number of counters.

9, **18**, **27** counters

3 × 9 = **27**

So, there are **27** fish in all in the tanks.

Find the product.

1. 4 × 9 = _____   **2.** 6 × 9 = _____   **3.** 3 × 9 = _____   **4.** 7 × 9 = _____

5. 1 × 9 = _____   **6.** _____ = 8 × 9   **7.** 9 × 5 = _____   **8.** _____ = 0 × 9

9. 2
× 9

10. 9
× 9

11. 9
× 3

12. 9
× 4

13. 10
× 9

9s Riddle

Find each product. Then find the product in the code box. Write the code letter on the line above the exercise number at the bottom of the page. Then answer the mystery question.

CODE

A	C	D	E	F	H	M	N	O	R	S	T	V	W	Y
27	24	40	81	90	9	36	54	18	63	25	0	12	45	72

1. $9 \times 5 =$ _____

2. $3 \times 8 =$ _____

3. $0 \times 9 =$ _____

4. $5 \times 5 =$ _____

5. $9 \times 7 =$ _____

6. $3 \times 9 =$ _____

7. $9 \times 9 =$ _____

8. $10 \times 4 =$ _____

9. $6 \times 9 =$ _____

10. $4 \times 9 =$ _____

11. $9 \times 1 =$ _____

12. $4 \times 3 =$ _____

13. $8 \times 9 =$ _____

14. $2 \times 9 =$ _____

15. $9 \times 10 =$ _____

___ ___ ___   ___ ___ ___ ___
11 14   1   10   6   9 13

___ ___ ___ ___ ___ ___ ___   ___ ___ ___ ___
15   6   2   3 14   5   4   8 14   7   4

9   ___ ___ ___ ___ ?   Answer _____
    11   6 12   7

Name _____

Problem Solving • Multiplication

Lucy's mother is making punch for the students. For each pitcher, she uses 1 can of fruit juice, 1 bottle of ginger ale, and 6 scoops of sherbet. How much of each ingredient will she need to make 5 pitchers of punch?

Read the Problem	Solve the Problem
What do I need to find? I need to find how much of each ingredient Lucy's mother needs to make 5 pitchers of punch.	First, make a table with the information. <table><tr><td>**Number of Pitchers**</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td></tr><tr><td>**Cans of Fruit Juice**</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td></tr><tr><td>**Bottles of Ginger Ale**</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td></tr><tr><td>**Scoops of Sherbet**</td><td>6</td><td>12</td><td>18</td><td>24</td><td>30</td></tr></table>
What information do I need to use? Lucy's mother uses ___1___ can of fruit juice, ___1___ bottle of ginger ale, and ___6___ scoops of sherbet for each pitcher.	Next, look for information in the table that will help you solve the problem. Look for a pattern. The cans of fruit juice and the bottles of ginger ale increase by 1. The scoops of sherbet increase by 6. Complete the table.
How will I use the information? I will make a ___table___ to show the total amounts of each ingredient Lucy's mother needs.	So, Lucy's mother will need 5 cans of fruit juice, 5 bottles of ginger ale, and 30 scoops of sherbet.

1. Suppose Lucy's mother decides to make 2 more pitchers of punch. How many scoops of sherbet would she need for 7 pitchers of punch? **Explain** your answer.

_____

_____

2. Jake gives his dog 4 chew bones and 1 dog toy each month. How many chew bones and how many toys will Jake give his dog in 5 months?

_____

Name _____

Using Tables

Solve. Use a table to organize the information for 1–2.

1. Marcy uses 1 bottle of blue paint, 2 bottles of yellow paint, and 1 bottle of red paint for one painting. How many bottles of paint will she need to make 4 of the same paintings?

Number of Paintings	1			
Blue Paint	1			
Yellow Paint	2			
Red Paint	1			

_____

2. Miguel puts photos in an album. The album has 5 right-hand and 5 left-hand pages. Each right-hand page holds 4 photos. Each left-hand page holds 3 photos. How many photos will fit in the album?

Number of Pairs of Pages	1				
Right Page	4				
Left Page	3				

_____

3. Renee earns 2 dimes each time she helps her mother. How many dimes will she earn if she helps her mother 4 times a day for a week?

_____

4. Henry earns $6 every time he waters Mr. Young's lawn. How much will Henry earn if he waters the lawn 4 times in July and 4 times in August?

_____

5. **Stretch Your Thinking** Suppose Exercise 2 asked how many photos fit on the first 6 pages of Miguel's album. **Explain** how you could find the answer.

_____

_____

_____

_____