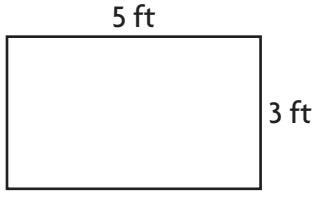
Name _____

Perimeter

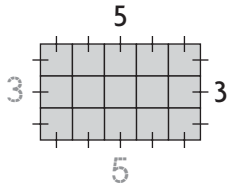
Perimeter is the distance around a shape. You can use grid paper to count the number of units around the outside of a rectangle to find its perimeter.



How many feet of ribbon are needed to go around the bulletin board?

Step 1 On grid paper, draw a rectangle that has a length of **5** units and a width of **3** units.

Step 2 Find the length of each side of the rectangle. Mark each unit of length as you count.



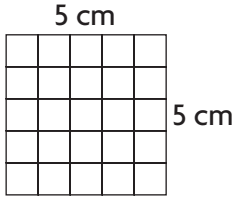
Step 3 Add the side lengths. 5 + 3 + 5 + 3 = 16

The perimeter is 16 feet.

So, 16 feet of ribbon are needed to go around the bulletin board.

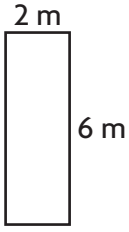
1. What is the perimeter of this square?

___ + ___ + ___ + ___ = ___ centimeters



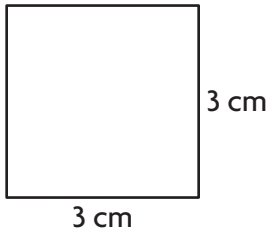
Find the perimeter of the rectangle or square.

2.



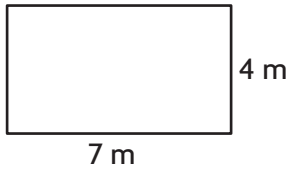
_____ meters

3.



_____ centimeters

4.

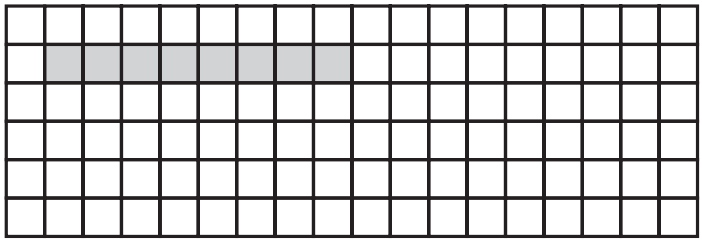


_____ meters

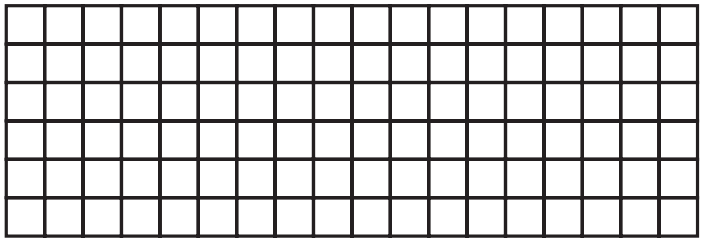
Name _____

Perimeter Puzzlers

1. The shaded rectangle has a perimeter of 18 cm. Draw a different rectangle that has a perimeter of 18 cm.

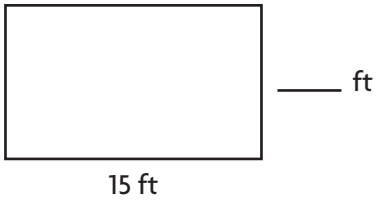


2. Draw a square and find the perimeter. Then draw a rectangle that has the same perimeter as the square.



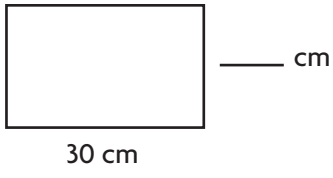
Find the unknown length for each rectangle.

3.



Perimeter = 50 ft

4.

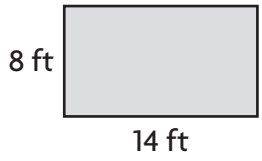


Perimeter = 96 cm

Name _____

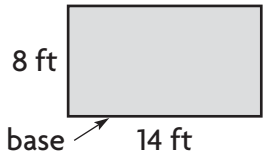
Area

Area is the measure of the number of **unit squares** needed to cover a surface. A unit square is a square with a side length of 1 unit. It has an area of 1 **square unit**.



Find the area of the rectangle at the right.

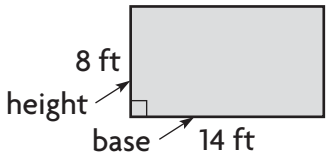
You can use the formula **Area = base × height**.



Step 1 Identify one side as the base.

The base is 14 feet.

Step 2 Identify a perpendicular side as the height.



The height is 8 feet.

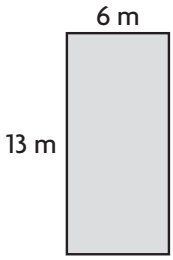
Step 3 Use the formula to find the area.

Area = base × height
= 14 × 8
= 112

So, the area of the rectangle is 112 square feet.

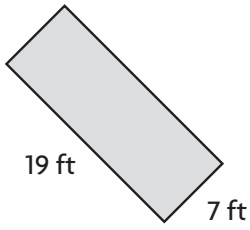
Find the area of the rectangle or square.

1.



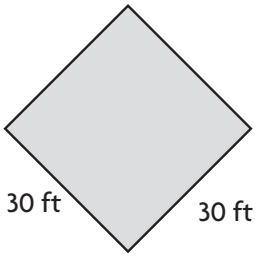
_____

2.



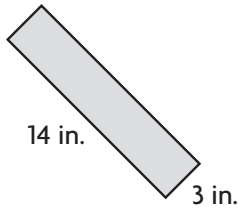
_____

3.



_____

4.

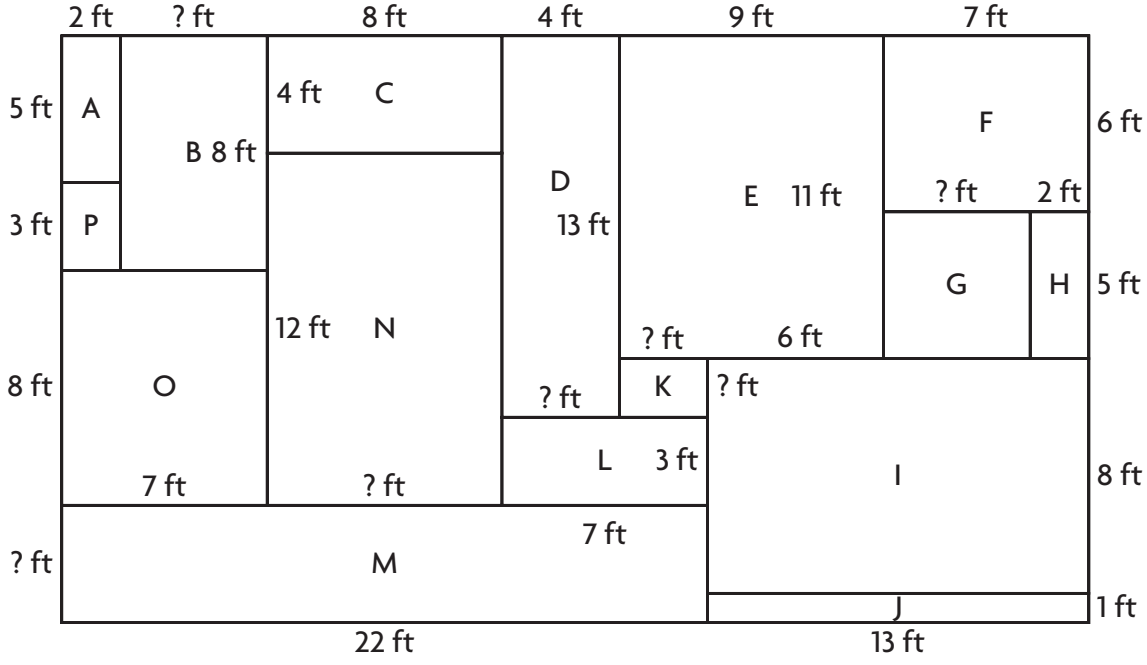


_____

Name _____

Aiden's Garden

Find the area of each rectangular garden using the formula $A = b \times h$. Write your answer for each garden on the line provided.



1.

A _____ B _____ C _____ D _____

E _____ F _____ G _____ H _____

I _____ J _____ K _____ L _____

M _____ N _____ O _____ P _____

2. Write Math **Explain** how you found the area for garden G.

_____

_____

_____

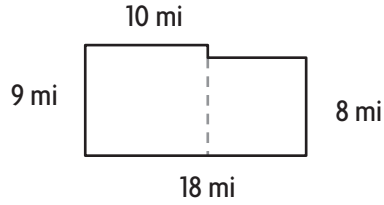
_____

_____

Name _____

Area of Combined Rectangles

Find the area of the combined rectangles.



Step 1 First, find the area of each section of the shape.

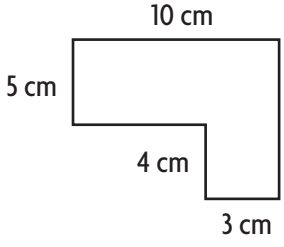
LEFT	RIGHT	
$A = b \times h$	$A = b \times h$	
$= 10 \times 9$	$= 8 \times 8$	**Think:** $18 - 10 = 8$
$= 90$	$= 64$	

Step 2 Add the two areas. $90 + 64 = 154$

So, the total area is 154 square miles.

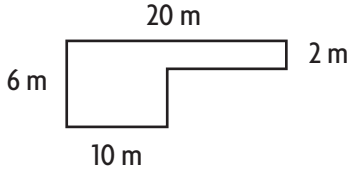
Find the area of the combined rectangles.

1.



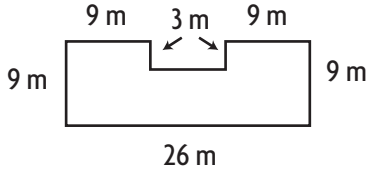
_____

2.



_____

3.



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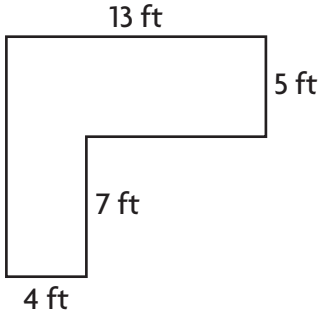
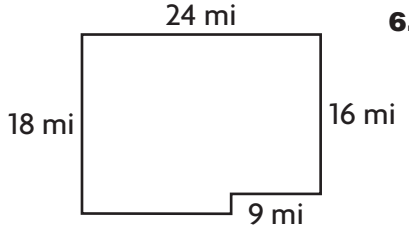
4.



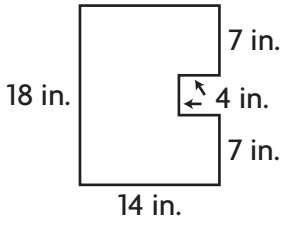
_____

5.



_____

6.



_____

Name _____

Unusual Measures

A very long time ago, people used body units to measure lengths.

Span length from the end of the thumb to the end of the little finger when hand is stretched fully

Cubit length from the elbow to the end of the longest finger

Fathom length from fingertip to fingertip when arms are stretched fully in opposite directions

You can use body measures to estimate the areas of objects at school. List some objects. Then choose the most appropriate unit to estimate the area of the object. Record your results in the chart below. Follow the two examples shown.

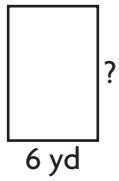
Object Measured	Measured in Spans Area	Measured in Cubits Area	Measured in Fathoms Area
Desk Top	12 square spans	2 square cubits	
1.			
2.			
3.			
4.			

5. Write Math **Explain** how you found the area in square spans.

Name _____

Find Unknown Measures

Fred has 30 yards of fencing to enclose a rectangular vegetable garden. He wants it to be 6 yards wide. How long will his vegetable garden be?



Step 1 Decide whether this problem involves area or perimeter.

Think: The fencing goes *around the outside* of the garden. This is a measure of perimeter.

Step 2 Use a formula for perimeter. The width is **6** yards. The perimeter is **30** yards. The length is unknown.

$P = (2 \times l) + (2 \times w)$

$30 = (2 \times l) + (2 \times 6)$

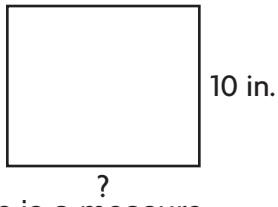
$30 = (2 \times l) + 12$

Step 3 Find the value of l.

$18 = 2 \times l$, so the value of l is 9.

The length of Fred's garden will be **9** yards.

Carol has 120 square inches of wood. The piece of wood is rectangular and has a height of 10 inches. How long is the base?



Step 1 Decide whether this problem involves area or perimeter.

Think: *Square inches* is a measure of area.

Step 2 Use a formula for area. The height is **10** inches. The area is **120** square inches. The length is unknown.

$A = b \times h$

$120 = b \times 10$

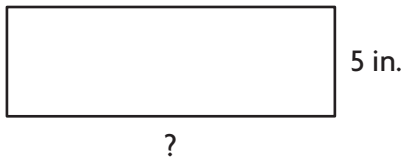
Step 3 Find the value of b.

Since $120 = 12 \times 10$, the value of b is 12.

The base of Carol's piece of wood is **12** inches.

Find the unknown measure.

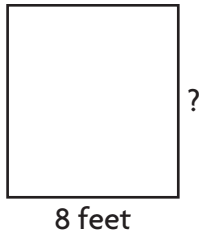
1.



Perimeter = 40 inches

width = _____

2.



Area = 72 square feet

height = _____

Name _____

Rectangular Riddles

Solve each riddle.

1. I am a rectangle. My perimeter is 60 feet. My length is twice as long as my width. How much area do I cover?

_____

2. I am a rectangle, and my area is 80 square inches. My width is 2 inches shorter than my length. What is my perimeter?

_____

3. I am the fencing around the rectangular lion exhibit at a zoo. The lions have 1,000 square meters to roam inside a rectangular area that is 15 meters longer than it is wide. If I were to unwind and make myself straight, how long would I be?

_____

4. I am a rectangular picture frame. If I were straight, I would be 120 inches long. I am wrapped around a picture, and my length is twice as long as my width. What is the area of the picture that I am wrapped around?

_____

5. **Stretch Your Thinking** Write two of your own rectangular riddles. Write one that asks for perimeter and one that asks for area.

_____

_____

_____

_____

_____

_____

Name _____

Problem Solving • Find the Area

Use the strategy *solve a simpler problem*.

Marilyn is going to paint a wall in her bedroom. The wall is 15 feet long and 8 feet tall. The window takes up an area 6 feet long and 4 feet high. How many square feet of the wall will Marilyn have to paint?

Read the Problem	Solve the Problem
What do I need to find? I need to find how many square feet of the wall Marilyn will paint.	First, find the area of the wall. $A = b \times h$ $= 15 \times 8$ $= 120$ square feet Next, find the area of the window. $A = b \times h$ $= 6 \times 4$ $= 24$ square feet Last, subtract the area of the window from the area of the wall. $120 - 24 = 96$ square feet So, Marilyn will paint 96 square feet of her bedroom wall.
What information do I need to use? The paint will cover the wall. The paint will not cover the window. The base of the wall is 15 feet and the height is 8 feet. The base of the window is 6 feet and the height is 4 feet.	
How will I use the information? I can solve simpler problems. Find the area of the wall. Then, find the area of the window. Last, subtract the area of the window from the area of the wall.	

1. Ned wants to wallpaper the wall of his bedroom that has the door. The wall is 14 feet wide and 9 feet high. The door is 3 feet wide and 7 feet high. How many square feet of wallpaper will Ned need for the wall?

_____

2. Nicole has a rectangular canvas that is 12 inches long and 10 inches wide. She paints a blue square in the center of the canvas. The square is 3 inches on each side. How much of the canvas is NOT painted blue?

_____

Name _____

Building Bedrooms

The Harrisons have two children. They need your help with designing a bedroom for each child. Here are the conditions.

- Both rooms must be rectangular and have one wall in common.
- All measurements must be in whole feet.
- The walls are 8 feet high.
- Each room must have a door and at least two windows.
- Up to 100 feet of border in total may be used for the walls of the two rooms.

In the space below, design the two bedrooms for the Harrisons. Label all dimensions.

1. How much carpeting will be needed to cover the floors of both rooms?

_____

2. One can of paint covers 200 square feet. Estimate how many cans of paint will be needed to paint the walls of both rooms.

_____