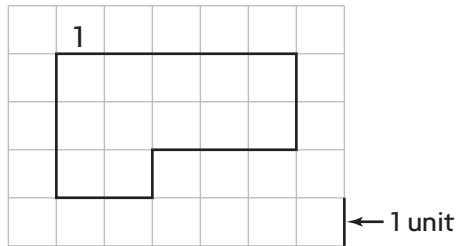Name _____

Model Perimeter

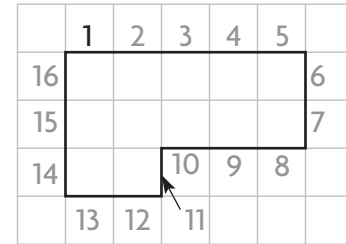---

Perimeter is the distance around a shape.

Find the perimeter of the shape.

Step 1 Choose a unit to begin counting and label it 1.

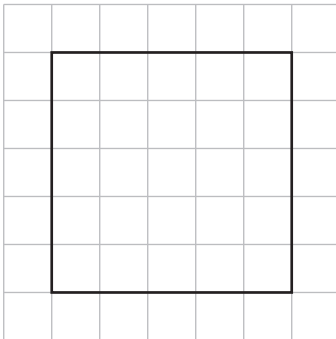**Step 2** Count each unit around the shape to find the perimeter.

16 units

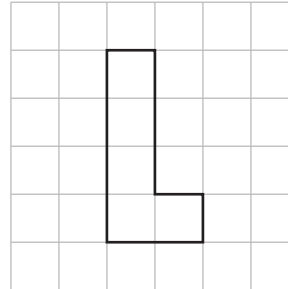So, the perimeter of the shape is **16** units.

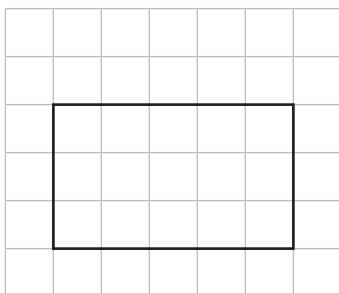**Find the perimeter of the shape. Each unit is 1 centimeter.**
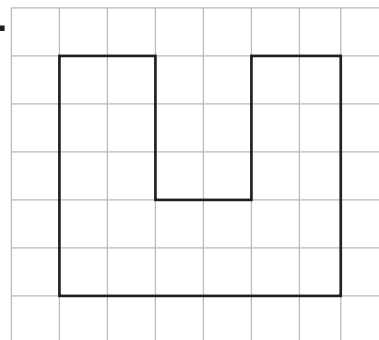
1.

_____ centimeters

2.

_____ centimeters

3.

_____ centimeters

4.

_____ centimeters

Find Perimeter

Kelsey wants to know the perimeter of the shape below.
She can use an inch ruler to find the perimeter.

Step 1 Choose one side of the shape to measure. Place the zero mark of the ruler on the end of the side. Measure to the nearest inch. Write the length.

Step 2 Use the ruler to measure the other three sides. Write the lengths.
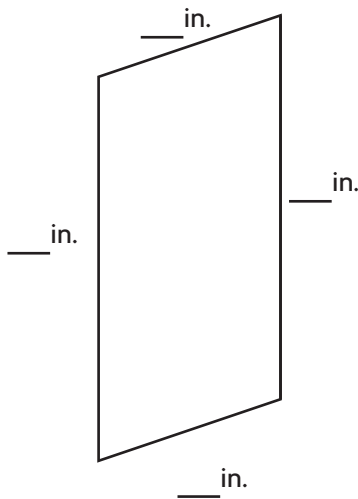
Step 3 Add the lengths of all the sides.
$1 + 1 + 2 + 1 = 5$
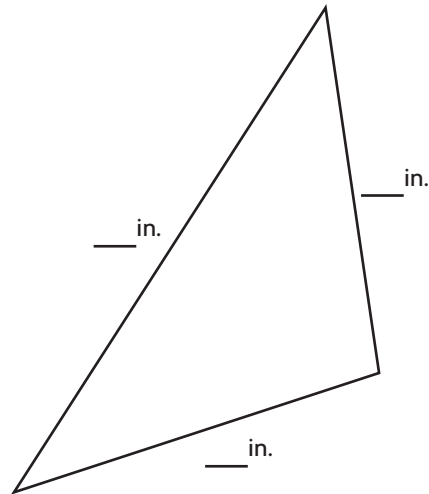
So, the perimeter of the shape is **5** inches.

1 in.

1 in.   1 in.

2 in.
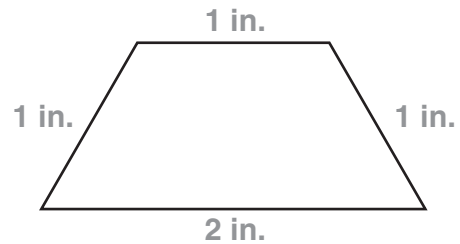
Use an inch ruler to find the perimeter.

1.

___ in.

___ in.

___ in.

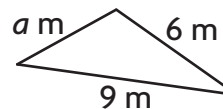___ in.

_____ inches

2.

___ in.

___ in.

___ in.

_____ inches

Name _____

Algebra • Find Unknown Side Lengths

An unknown side length is a side that does not have its length labeled with a number. Instead the side is labeled with a symbol or letter, such as *a*.

The perimeter of the shape is 20 meters. Find the value of *a*.

a m   6 m   9 m

Think: There is only one unknown side length.

Step 1 Add the *known* side lengths.
$6 + 9 = 15$

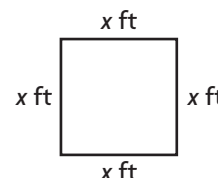**Step 2** Subtract the sum of the known side lengths from the perimeter.
$20 - 15 = 5$

Step 3 Add to check your work.
$6 + 9 + 5 = 20$ ✓

So, the unknown side length, *a*, is **5** meters.

The perimeter of the square is 12 feet. What is the length of each side of the square?

x ft
x ft   *x* ft
x ft

Think: A square has four sides of equal length.

Step 1 Divide the perimeter by the number of sides.
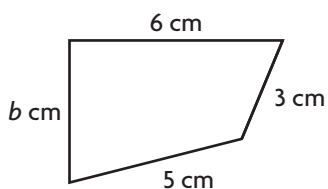$12 \div 4 = 3$

Step 2 Multiply to check your work.
$4 \times 3 = 12$ ✓
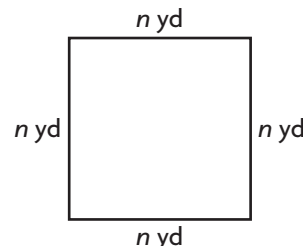
So, the length of each side, *x*, is **3** feet.

Find the unknown side lengths.

1. Perimeter = 18 centimeters

6 cm
b cm   3 cm
5 cm

_____ centimeters

2. Perimeter = 20 yards

n yd
n yd   *n* yd
n yd
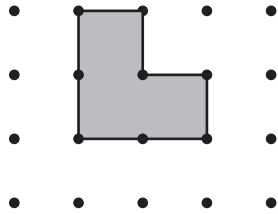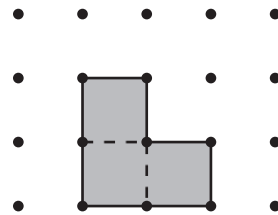
_____ yards

Understand Area

A unit square is a square with a side length of 1 unit. Area is the measure of the number of unit squares needed to cover a surface. A square unit is used to measure area.
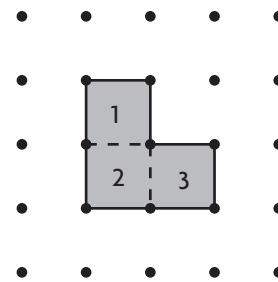
What is the area of the shape?

Step 1 Draw lines to show each unit square in the shape.

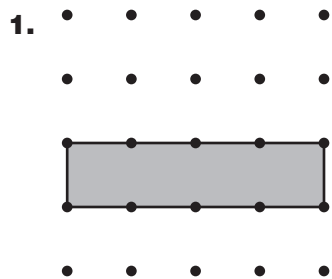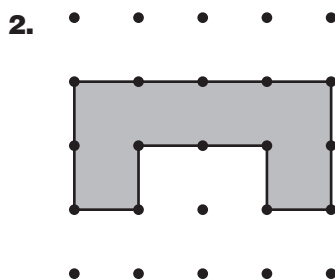**Step 2** Count the number of unit squares to find the area.

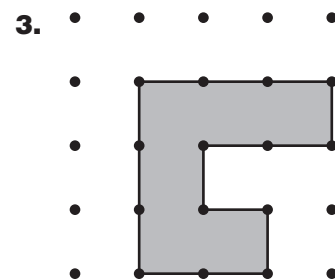The area of the shape is **3** square units.

Count to find the area of the shape.

1.

Area = ____ square units
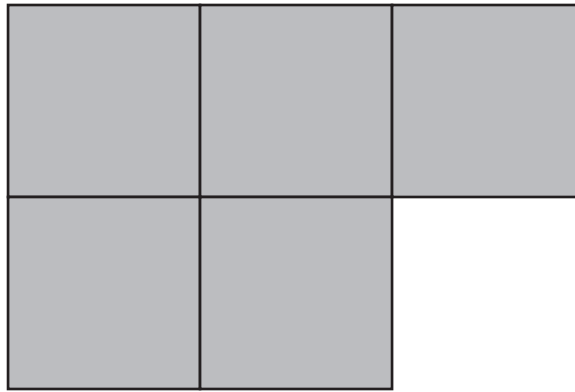
2.

Area = ____ square units

3.

Area = ____ square units

Name _____

Measure Area

Find the area of the shape. Each unit square is 1 square inch.

Think: How many unit squares are needed to cover this flat surface?

Step 1 Use 1-inch square tiles. Cover the surface of the shape with the tiles.
Make sure there are no gaps (space between the tiles).
Do not overlap the tiles.

Step 2 Count the tiles you used.
5 tiles are needed to cover the shape.

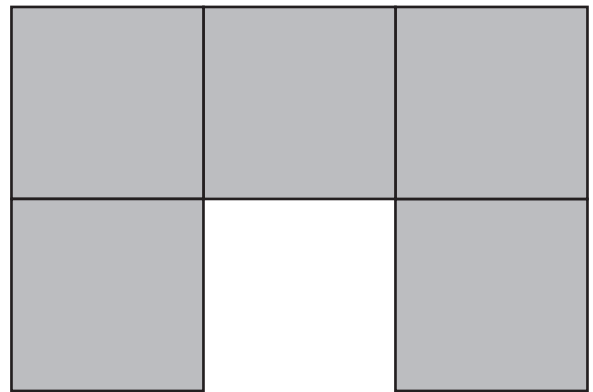So, the area of the shape is **5** square inches.

Count to find the area of the shape.
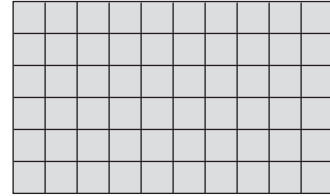**Each square is 1 square inch.**

1.
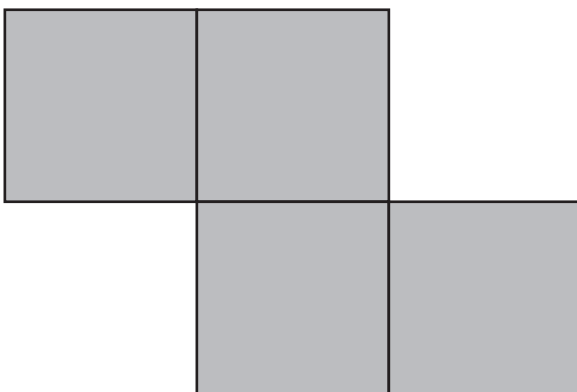
Area = _____ square inches
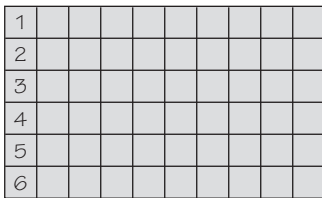
2.

Area = _____ square inches

Use Area Models

Use multiplication to find the area of the shape.
Each unit square is 1 square meter.

Step 1 Count the number of rows.
There are **6** rows.

Step 2 Count the number of unit squares in each row. There are **10** unit squares.
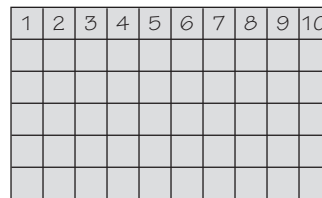
Step 3 Multiply the number of rows by the number in each row to find the area.

number of rows × number in each row = area

6   ×   10   = **60**

So, the area of the shape is **60** square meters.

Find the area of the shape.
Each unit square is 1 square meter.

1.

_____

2.

_____

Problem Solving • Area of Rectangles

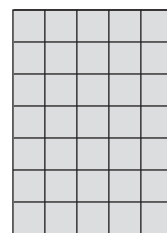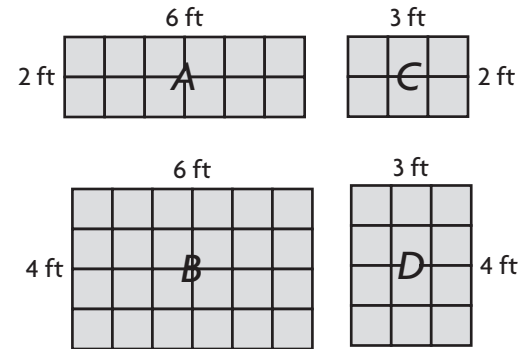Mrs. Wilson wants to plant a garden, so she drew plans for some sample gardens. She wants to know how the areas of the gardens are related. How will the areas of Gardens A and B change? How will the areas of Gardens C and D change?

Use the graphic organizer to help you solve the problem.

Read the Problem		
What do I need to find? I need to know how the areas will change from *A* to *B* and from <u>C</u> to <u>D</u>.	**What information do I need to use?** I need to use the <u>length</u> and <u>width</u> of each garden to find its area.	**How will I use the information?** I will record the areas in a table. Then I will look for a pattern to see how the <u>areas</u> will change.

Solve the Problem

	Length	Width	Area		Length	Width	Area
Garden A	2 ft	6 ft	12 sq ft	Garden C	2 ft	3 ft	6 sq ft
Garden B	4 ft	6 ft	24 sq ft	Garden D	4 ft	3 ft	12 sq ft

From the table, I see that the lengths will be doubled and the widths will be the same.
The areas in square feet will change from <u>12</u> to <u>24</u> and from <u>6</u> to <u>12</u>.
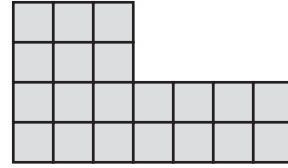So, the area will be <u>doubled</u>.

Solve.

1. Mrs. Rios made a flower garden that is 8 feet long and 2 feet wide. She made a vegetable garden that is 4 feet long and 2 feet wide. How do the areas change?
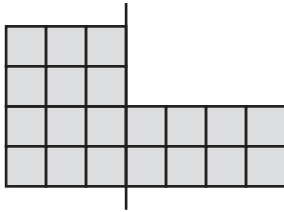
_____
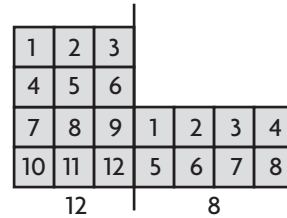
_____

Area of Combined Rectangles

You can break apart a shape into rectangles to find the total area of the shape.

Step 1 Draw a line to break apart the shape into two rectangles.

Step 2 Count the number of unit squares in each rectangle.

1	2	3
4	5	6

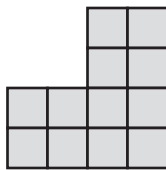| 7	8	9	1	2	3	4
10	11	12	5	6	7	8

12   8

Step 3 Add the number of unit squares in each rectangle to find the total area.

12 + 8 = **20** unit squares

So, the area of the shape is **20** square units.

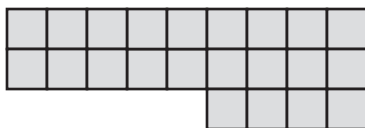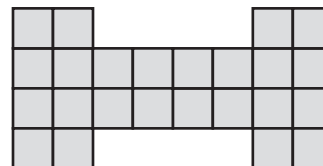**Draw a line to break apart the shape into rectangles. Find the area of the shape.**

1.

2.

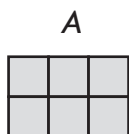_____   _____

3.

4.

_____   _____

Same Perimeter, Different Areas
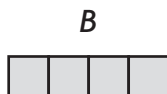
You can use perimeter and area to compare rectangles.

Compare the perimeters of Rectangle *A* and Rectangle *B*.

A

Find the number of units around each rectangle.
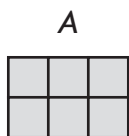
Rectangle *A*: 3 + 2 + 3 + 2 = **10** units

Rectangle *B*: 4 + 1 + 4 + 1 = **10** units

B

Compare: **10** units = **10** units

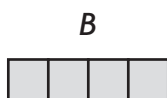So, Rectangle *A* has the same perimeter as Rectangle *B*.

Compare the areas of Rectangle *A* and Rectangle *B*.

A

Find the number of unit squares needed to cover each rectangle.

Rectangle *A*: **2** rows of **3** = 2 × 3, or **6** square units

B

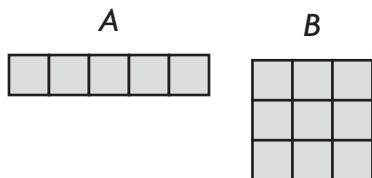Rectangle *B*: **1** row of **4** = 1 × 4, or **4** square units

Compare: **6** square units > **4** square units

So, Rectangle *A* has a greater area than Rectangle *B*.

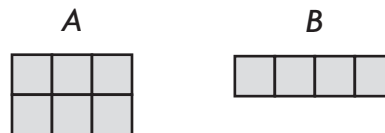**Find the perimeter and the area. Tell which rectangle has a greater area.**

1.   *A*   *B*

A: Perimeter = _____ ;

   Area = _____

B: Perimeter = _____ ;

   Area = _____

Rectangle _____ has a greater area.

2.   *A*   *B*

A: Perimeter = _____ ;

   Area = _____

B: Perimeter = _____ ;

   Area = _____
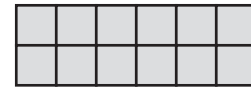
Rectangle _____ has a greater area.

Name _____

Same Area, Different Perimeters

**Find the perimeter and area of Rectangles _A_ and _B_.
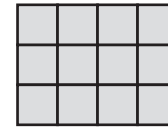Tell which rectangle has a greater perimeter.**

Step 1 Find the area of each rectangle. You can
multiply the number of unit squares
in each row by the number of rows.

Rectangle _A_: 2 × 6 = **12** square units

Rectangle _B_: 3 × 4 = **12** square units

Step 2 Find the perimeter of each rectangle.
You can add the sides.

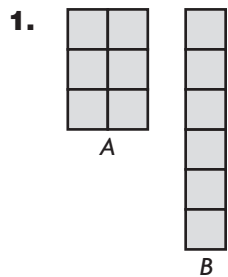Rectangle _A_: **6 + 2 + 6 + 2** = **16** units

Rectangle _B_: **4 + 3 + 4 + 3** = **14** units

Step 3 Compare the perimeters. **16** units > **14** units.

So, Rectangle _A_ has a greater perimeter.

**Find the perimeter and the area. Tell which
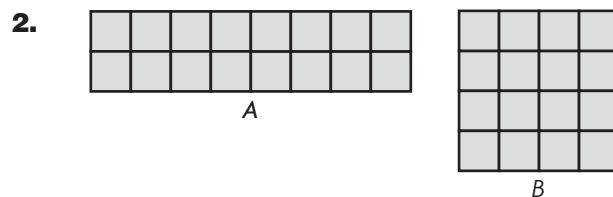rectangle has a greater perimeter.**

1.

_A: Area = _____ ;

     Perimeter = _____

_B: Area = _____ ;

     Perimeter = _____

Rectangle _____ has a greater perimeter.

2.

_A: Area = _____ ,

     Perimeter = _____

_B: Area = _____ ,

     Perimeter = _____

Rectangle _____ has a greater perimeter.