

MSP

Grade 3 Module 4

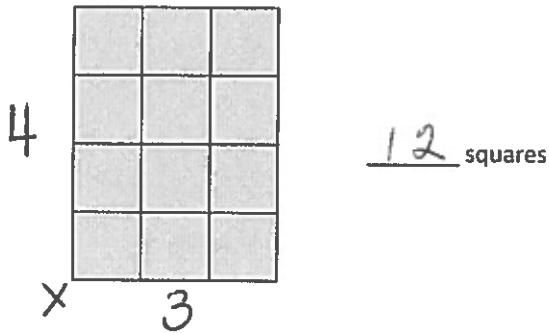
Lesson Refreshers

&

Homework Starters


2. Angela uses squares to find the area of a rectangle. Her work is shown below.

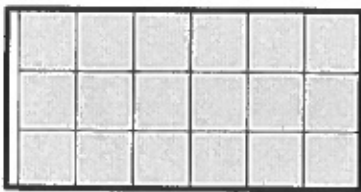
a. How many squares did she use to cover the rectangle?



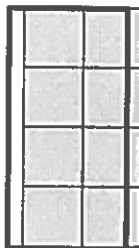
b. What is the area of the rectangle in square units? Explain how you found your answer.

The area of the rectangle is 12 square units.
 Each square is 1 square unit. There are 12 squares so the area of the rectangle is 12 square units.

3. Each  is 1 square unit. Which rectangle has the largest area? How do you know?



Rectangle A



Rectangle B

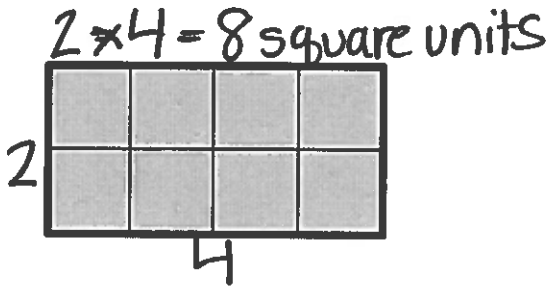


Rectangle C

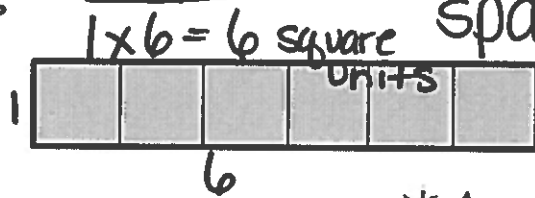
set

2. Colin uses square units to create these rectangles. Do they have the same area? Explain.

Shape A =




Shape B =

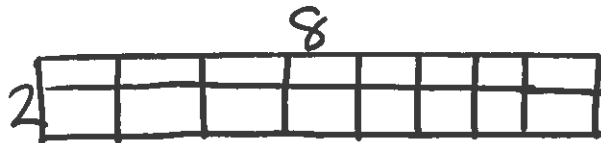
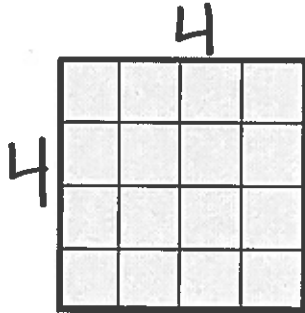


*Area is the amount of two-dimensional space in a bounded region.

*Area = length \times width

No, they do not have the same area because shape a is equal to 8 square units and shape b is equal to 6 square units.

3. Each  is a square unit. Count to find the area of the rectangle below. Then, draw a different rectangle that has the same area.




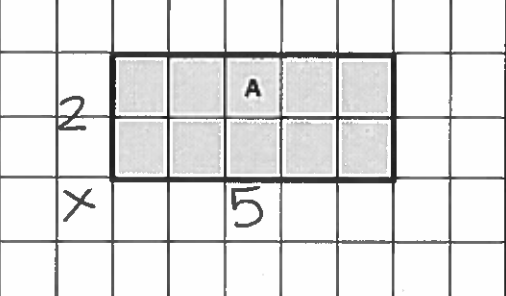
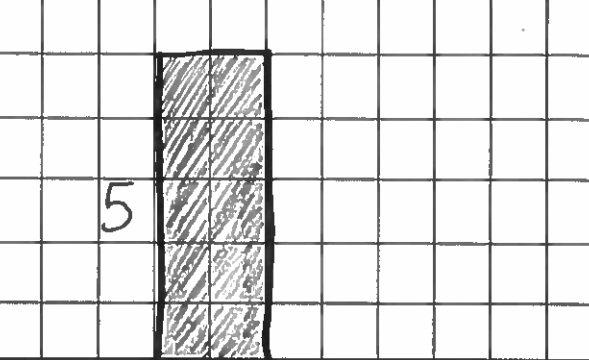
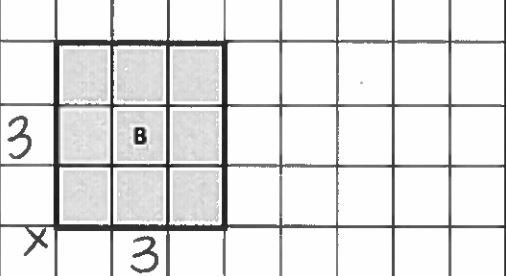
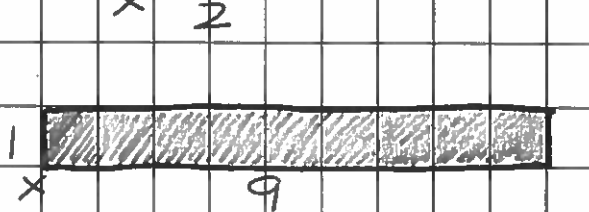
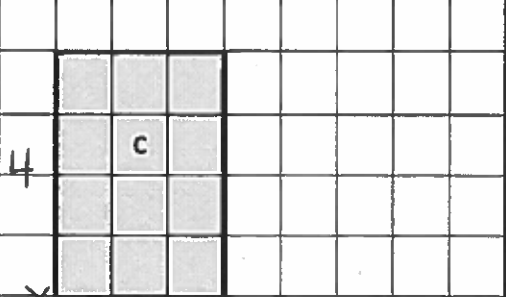
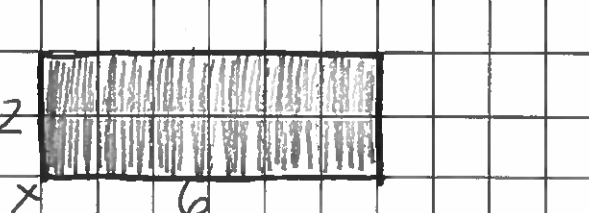
$2 \times 8 = 16$ square units.

$4 \times 4 = 16$ square units

Hint: To find all rectangles with an area of 16, list the factors. See below.

- (16)
- 1×16
- 2×8
- 4×4
- 8×2
- 16×1

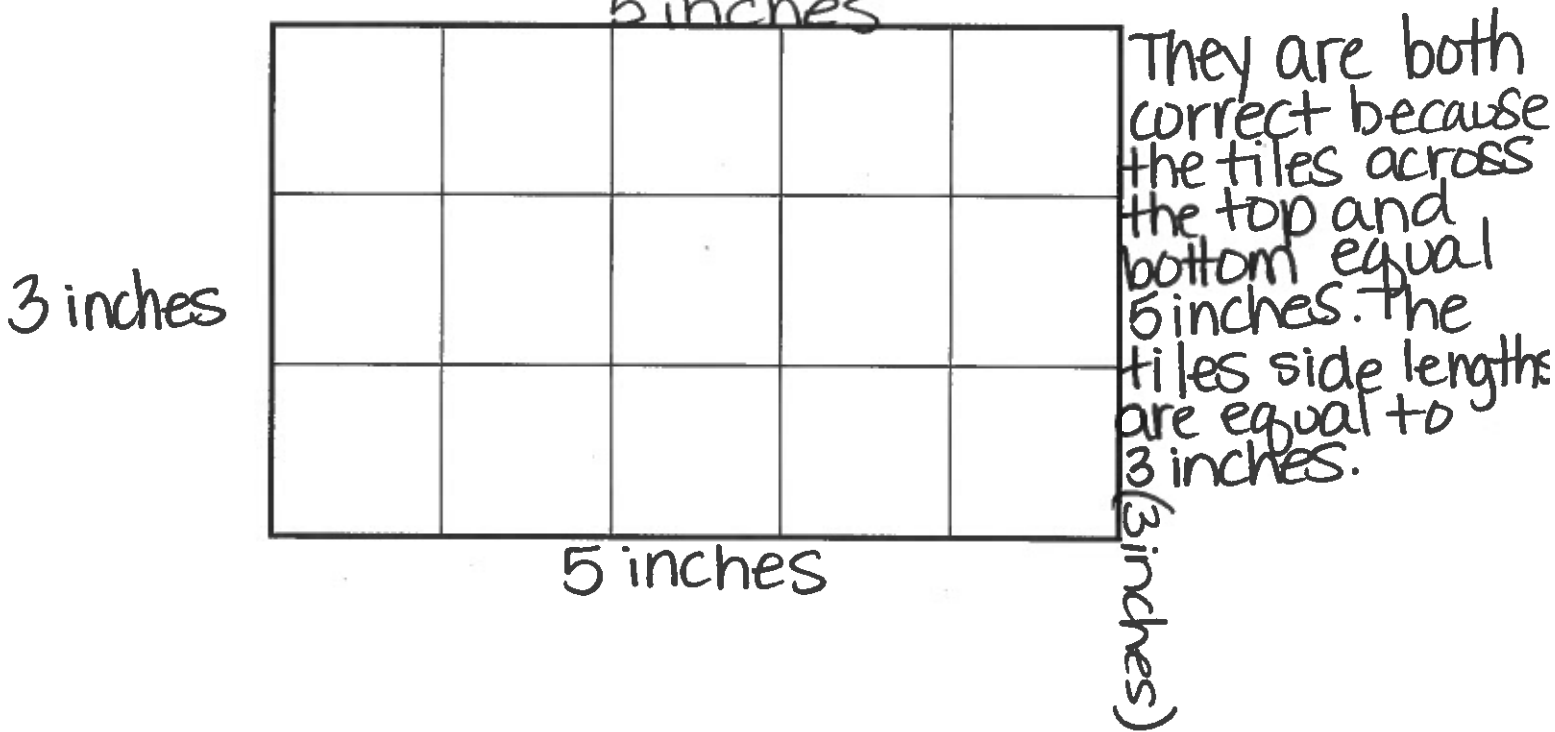
3. Each  is 1 square unit. Write the area of each rectangle. Then, draw a different rectangle with the same area in the space provided.

 <p>Area = <u>10</u> square units</p>	
 <p>Area = <u>9</u> square units</p>	
 <p>Area = <u>12</u> square units</p>	

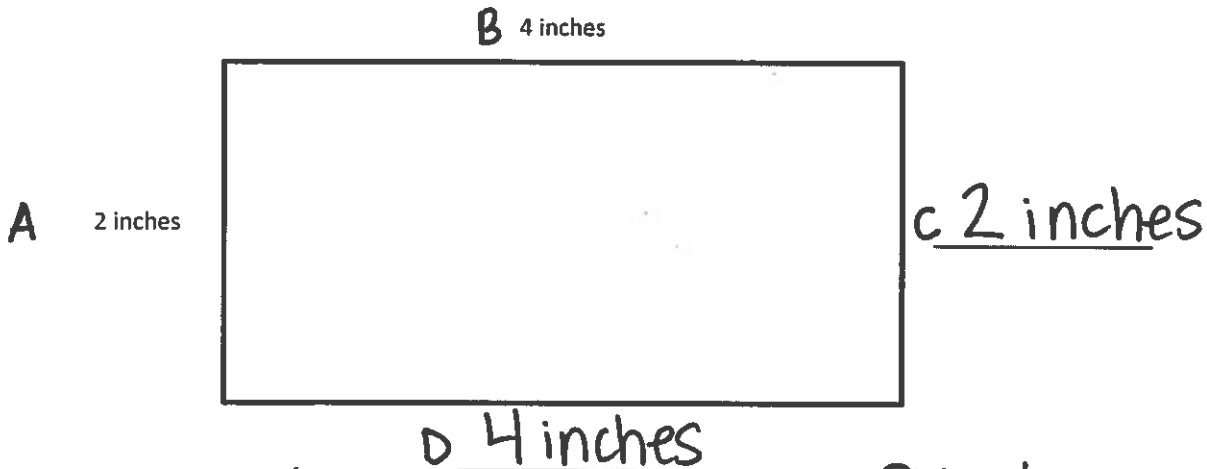
* Area is the amount of two-dimensional space in a bounded region.

* Area = length \times width

4. Each square unit below is 1 square inch. Claire says that the side length of the rectangle below is 3 inches. Tyler says the side length is 5 inches. Who is correct? Explain how you know.



5. Label the unknown side lengths for the rectangle below, and then find the area. Explain how you used the lengths provided to find the unknown lengths and area.



Total area: 8 inches

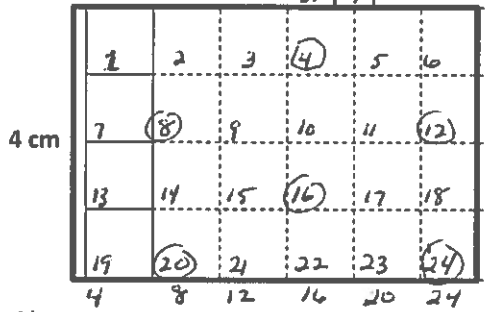
If I know side length A, I also know side length C, I also know side length B so I know D because opposite sides of a rectangle are equal

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1. Use the centimeter side of a ruler to draw in the tiles, and then skip-count to find the unknown area. Write a multiplication sentence for each tiled rectangle.

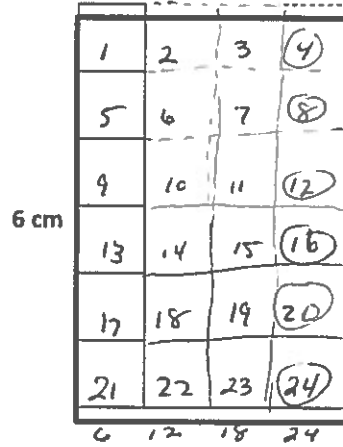
a. Area: 24 square centimeters. skip 4 places and circle the number



4 × 6 = 24 cm²

1-2-3-4-5-6-7-8-9-10-11-12-13-14-15-16
 skip
 17-18-19-20-21-22-23-24
 skip

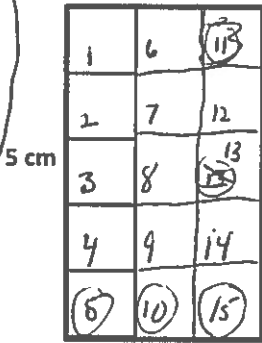
b. Area: 24 square centimeters.



skip counting by 4's is counting by 4's to the last square.

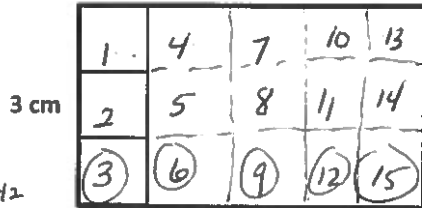
6 × 4 = 24 cm²

c. Area: 15 square centimeters.



5 × 3 = 15 cm²

d. Area: 15 square centimeters.



3 × 5 = 15 cm²

3 + 3 + 3 + 3 + 3
 skip
 1-2-3-4-5-6-7-8-9-10-11-12-13-14-15
 skip

Remember: To skip count add the same number over and over until you get to the end.

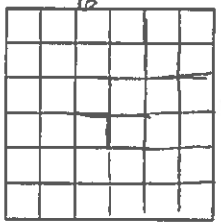

5 + 5 + 5 = 15


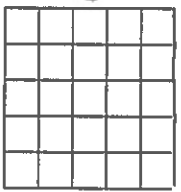
KNW



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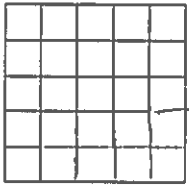

Date _____


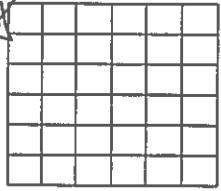
1. Each \square represents 1 square centimeter. Draw to find the number of rows and columns in each array. Match it to its completed array. Then, fill in the blanks to make a true equation to find each array's area.


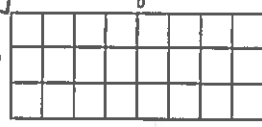
a.   $\underline{3}$ cm \times $\underline{6}$ cm = $\underline{18}$ sq cm

b.   $\underline{5}$ cm \times $\underline{5}$ cm = $\underline{25}$ sq cm

c.   $\underline{2}$ cm \times $\underline{8}$ cm = $\underline{16}$ sq cm

d.   $\underline{4}$ cm \times $\underline{3}$ cm = $\underline{12}$ sq cm

e.   $\underline{6}$ cm \times $\underline{6}$ cm = $\underline{36}$ sq cm

f.   $\underline{3}$ cm \times $\underline{8}$ cm = $\underline{24}$ sq cm

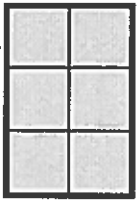



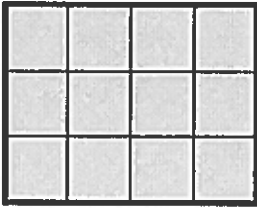
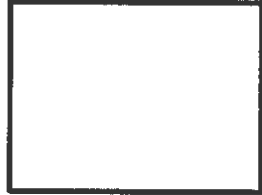
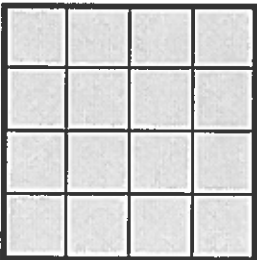
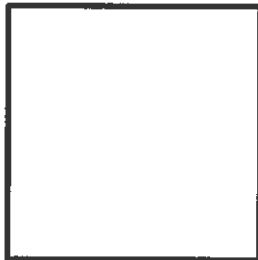
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Name _____

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1. Find the area of each rectangular array. Label the side lengths of the matching area model, and write a multiplication equation for each area model.

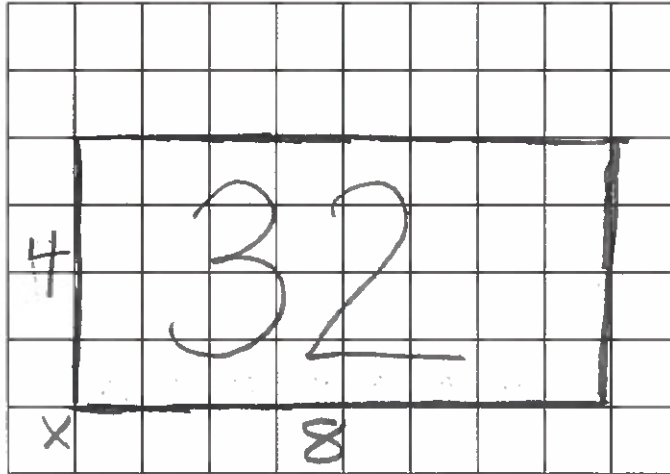
Area = length × width

Rectangular Arrays	Area Models
<p>a.</p>  <p>3 x 2</p> <p>6 square units</p>	 <p>3 units</p> <p>x 2 units</p> <p>3 units × 2 units = 6 square units</p>
<p>b.</p>  <p>_____ square units</p>	 <p>_____ units × _____ units = _____ square units</p>
<p>c.</p>  <p>_____ square units</p>	 <p>_____ units × _____ units = _____ square units</p>
<p>d.</p>  <p>_____ square units</p>	 <p>_____ units × _____ units = _____ square units</p>

Possible rectangles below by listing factors of 32.

3. On the grid below, draw a rectangle that has an area of 32 square centimeters. Label the side lengths.

- 32
 1×32
 2×16
 4×8
 ~~8×4~~
 16×2
 32×1



A 4 by 8 rectangle was used. Go down 4 and over 8.

4. Patricia draws a rectangle that has side lengths of 4 centimeters and 9 centimeters. What is the area of the rectangle? Explain how you found your answer.

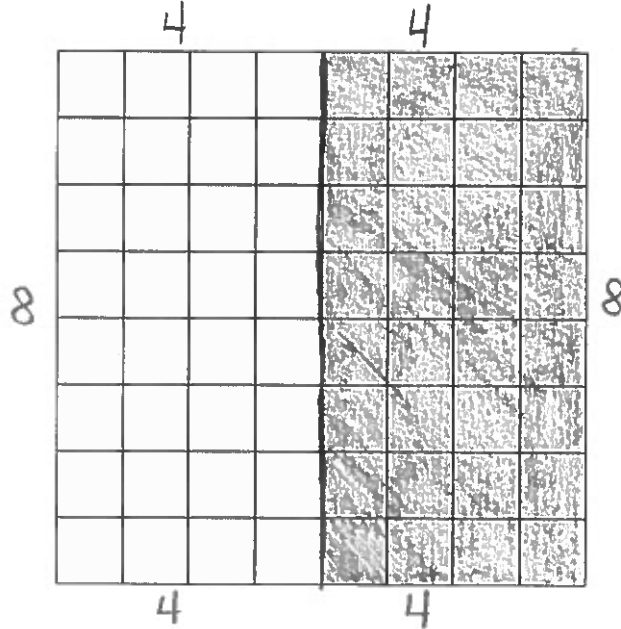
5. Charles draws a rectangle with a side length of 9 inches and an area of 27 square inches. What is the other side length? How do you know?

✓

Name _____

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1. Use the grid to answer the questions below.



a. Draw a line to divide the grid into 2 equal rectangles. Shade in 1 of the rectangles that you created.

b. Label the side lengths of each rectangle.

c. Write an equation to show the total area of the 2 rectangles.

$$4 \times 8 = 32$$

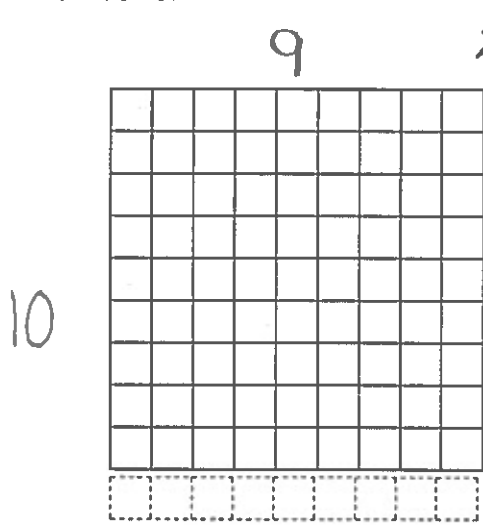
each rectangle has
an area of 32.

There are 2 rectangles

$$32 + 32 = 64$$

The total area of the rectangles is 64

2. Finn imagines 1 more row of nine to find the total area of 9×9 rectangle. Explain how this could help him solve 9×9 .



★ By adding another row, you can easily multiply $10 \times 9 = 90$. From here, you subtract 1 row of 9 from 90 to get 81.

$$10 \times 9 = 90$$

$$90 - 9 = 81 \quad (9 \times 9 = 81)$$

3. Shade an area to break the 16×4 rectangle into 2 smaller rectangles. Then, find the sum of the areas of the 2 smaller rectangles to find the total area. Explain your thinking.



$$16 \times 4 = (8 + 8) \times 4$$

$$64 = (8 \times 4) + (8 \times 4)$$

$$64 = 32 + 32$$

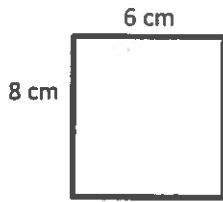
$$64 = 64$$

Area = 64 square units

I broke up 16 into 2 equal pieces.

$$\text{Area} = \text{Length} \times \text{Width}$$

3. a. Find the area of the rectangle below.



$$\begin{aligned} A &= l \times w \\ A &= 8 \times 6 \\ A &= 48 \text{ cm} \end{aligned}$$

- b. Hilda says a 4 cm by 12 cm rectangle has the same area as the rectangle in Part (a). Place parentheses in the equation to find the related fact and solve. Is Hilda correct? Why or why not?

$$\begin{aligned} 4 \times 12 &= 4 \times 2 \times 6 \\ 48 &= (4 \times 2) \times 6 \\ 48 &= \underline{8} \times \underline{6} \\ 48 &= \underline{48} \\ \text{Area: } &\underline{48} \text{ sq cm} \end{aligned}$$

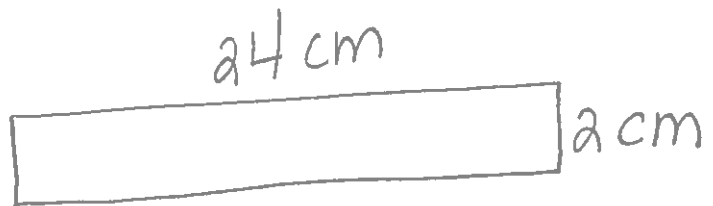
Hilda is correct because each rectangle has an area of 48 sq cm.

- c. Use the expression 8×6 to find different side lengths for a rectangle that has the same area as the rectangle in Part (a). Show your equations using parentheses. Then, estimate to draw the rectangle and label the side lengths.

$$8 \times 6 = (8 \times 3) \times 2$$

$$48 = 24 \times 2 \begin{pmatrix} 24 \\ +24 \\ \hline 48 \end{pmatrix}$$

$$48 = 48$$




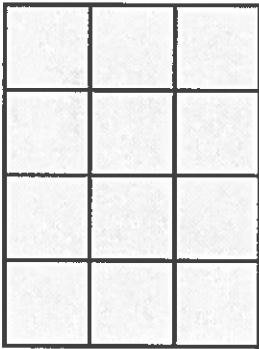
$$\text{Area} = 48 \text{ sq cm.}$$

JMD

Name _____ Date _____

1. A square calendar has sides that are 9 inches long. What is the calendar's area?

2. Each  is 1 square unit. Sienna uses the same square units to draw a 6×2 rectangle and says that it has the same area as the rectangle below. Is she correct? Explain why or why not.



3. The surface of an office desk has an area of 15 square feet. Its length is 5 feet. How wide is the office desk?

★Remember:
 C - Circle the key numbers.
 U - underline the question.
 B - Box the math action.
 E - Evaluate and draw.
 S - Solve and check.

length = 5 ft
 $A = 15 \text{ ft. squared}$
 width = ? ft

$$\begin{aligned} \text{Area} &= \text{length} \times \text{width} \\ 15 &= 5 \times \underline{\quad?} \\ 15 &= 5 \times \underline{\quad 3} \end{aligned}$$

★ Rephrase the question as a statement.

Answer:
 The office desk is 3 feet wide.

L. Shellman

Name _____

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1. Each of the following figures is made up of 2 rectangles. Find the total area of each figure.

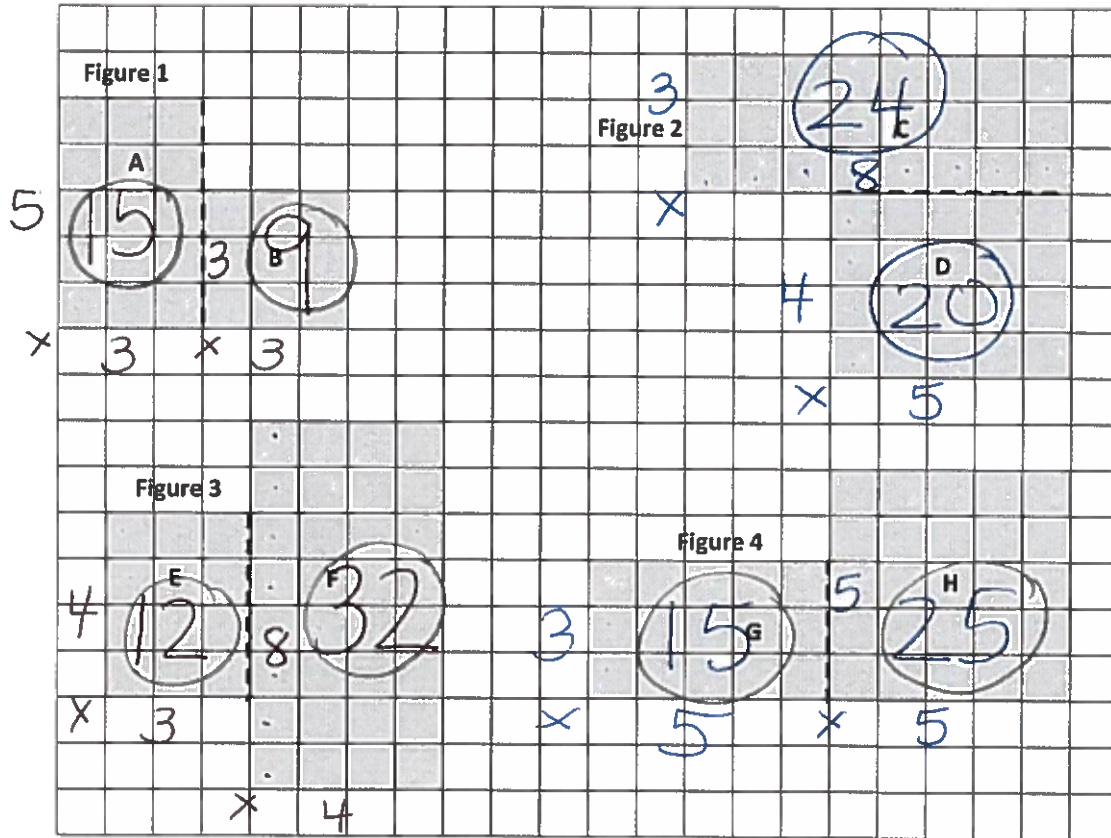


Figure 1: Area of A + Area of B: 15 sq units + 9 sq units = 24 sq units

Figure 2: Area of C + Area of D: 24 sq units + 20 sq units = 44 sq units

Figure 3: Area of E + Area of F: 12 sq units + 32 sq units = 44 sq units

Figure 4: Area of G + Area of H: 15 sq units + 25 sq units = 40 sq units

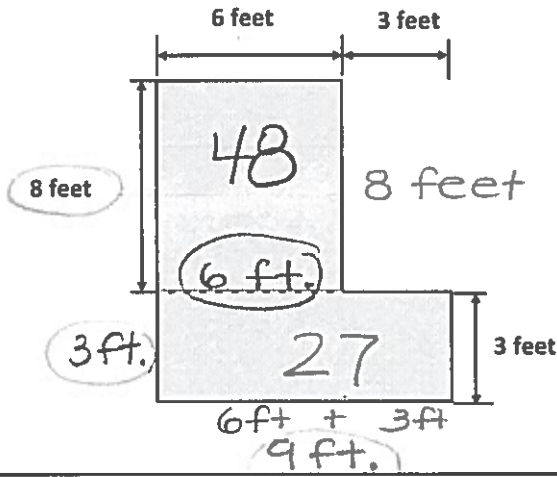
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Name _____

Date _____

1. Find the area of each of the following figures. All figures are made up of rectangles.

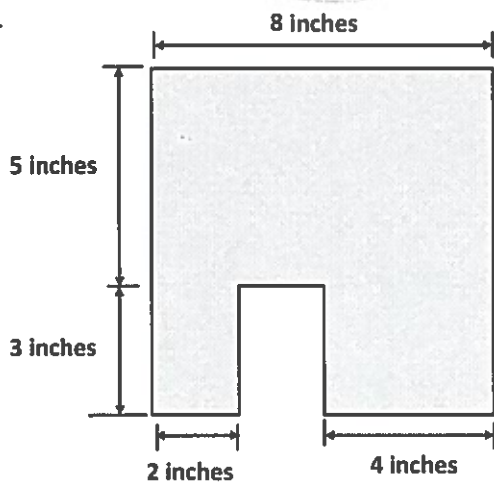
a.



* Fill in unknown sides by using known sides.

Top rectangle: 48 ft.
Bottom rectangle: 27 ft.

b.



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Use a ruler to measure the side lengths of each numbered room in centimeters. Then, find the area. Use the measurements below to match, and label the rooms with the correct areas.

Kitchen: 45 square centimeters

Living Room: 63 square centimeters

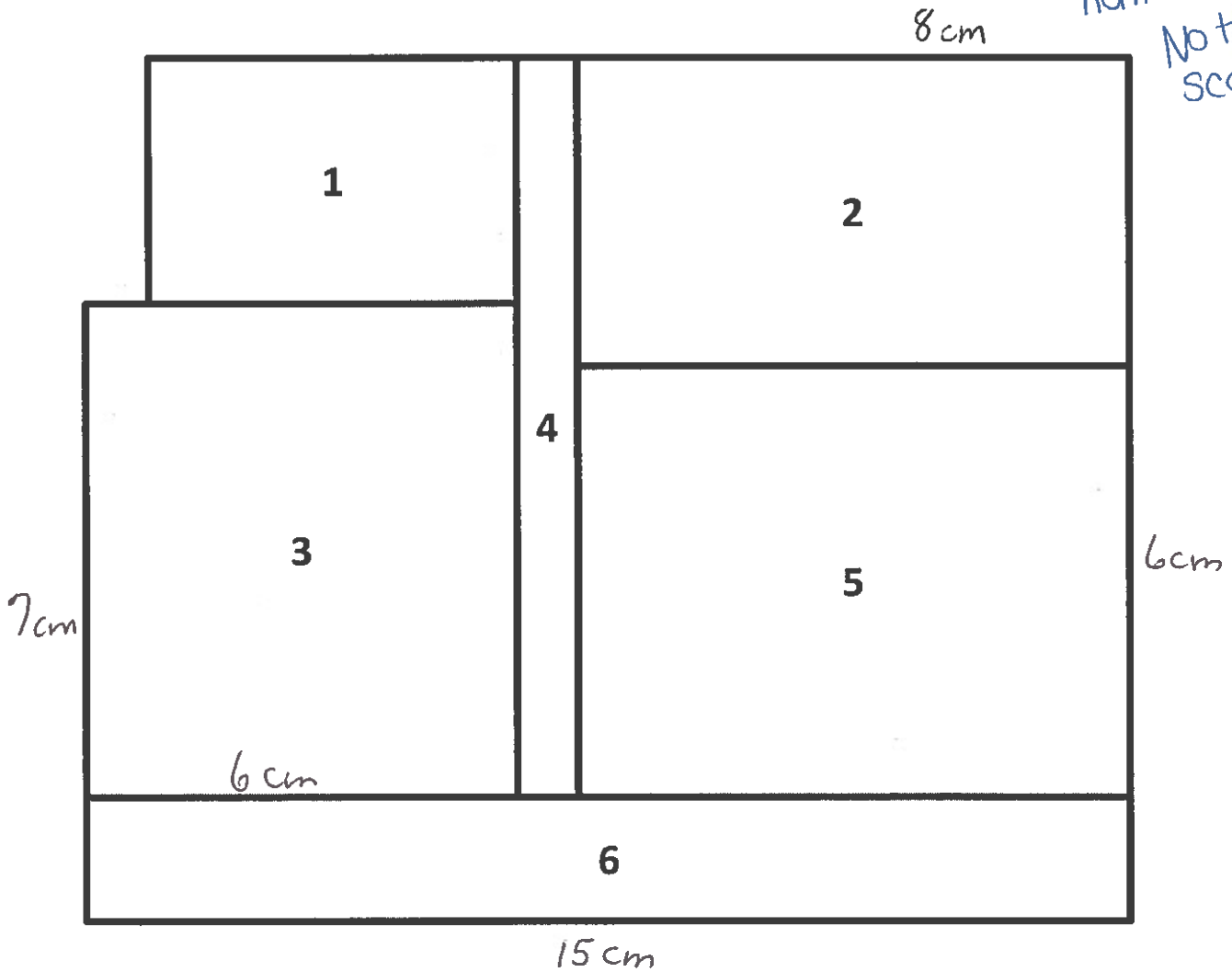
Porch: 34 square centimeters

Bedroom: 56 square centimeters

Bathroom: 24 square centimeters

Hallway: 12 square centimeters

*Skip this homework.
No to scale!*



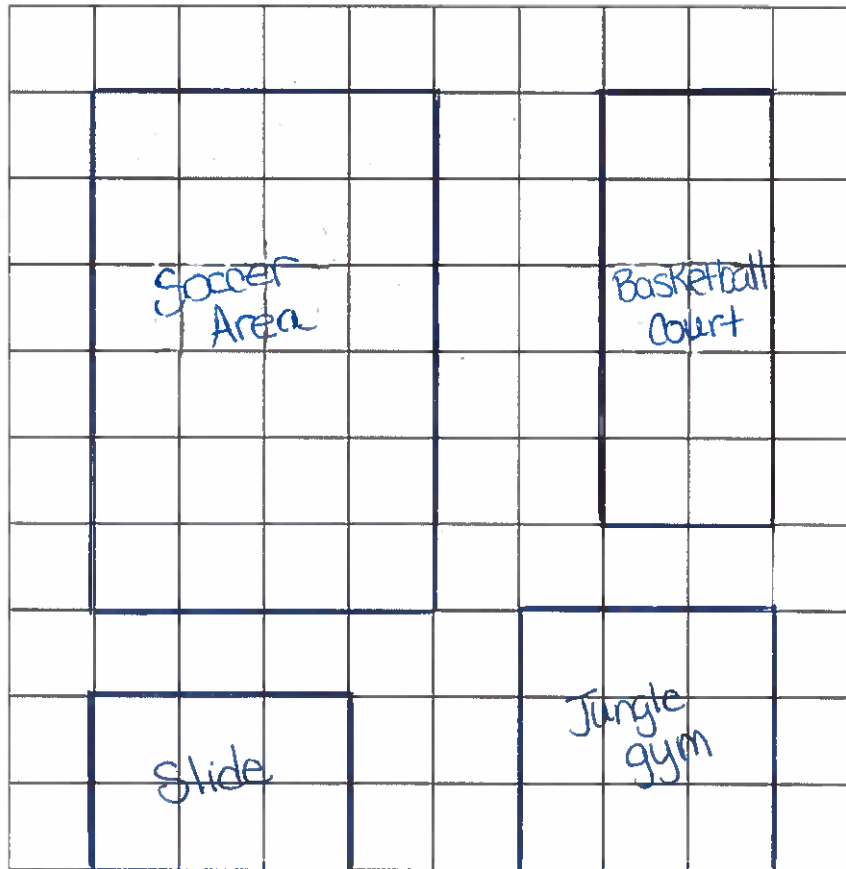
GA

Name _____

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Jeremy plans and designs his own dream playground on grid paper. His new playground will cover a total area of 100 square units. The chart shows how much space he gives for each piece of equipment, or area. Use the information in the chart to draw and label a possible way Jeremy can plan his playground.

Basketball court	10 square units
Jungle gym	9 square units
Slide	6 square units
Soccer area	24 square units



Area=length×width

Basketball court

$$5 \times 2 = 10$$

Jungle gym

$$3 \times 3 = 9$$

Slide

$$3 \times 2 = 6$$

Soccer area

$$6 \times 4 = 24$$

*It is important to know the factors of 6, 9, 10 & 24 for this problem.

ax