

Name _____

Area of Combined Rectangles

Essential Question How can you find the area of combined rectangles?



Measurement and Data—
4.MD.A.3

MATHEMATICAL PRACTICES
MP1, MP4, MP5

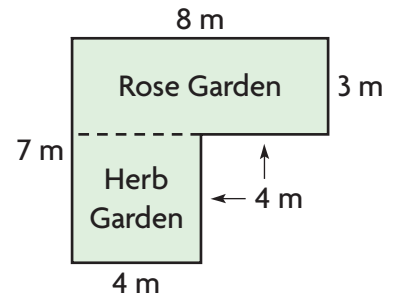


Unlock the Problem



Jan is visiting a botanical garden with her family. The diagram shows two rectangular sections of the garden. What is the total area of the two sections?

There are different ways to find the area of combined rectangles.



One Way Count square units.

Materials ■ grid paper

- Draw the garden on grid paper. Then find the area of each section by counting squares inside the shape.

Rose Garden

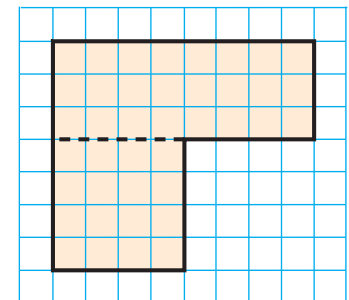
Herb Garden

Area = _____ square meters

Area = _____ square meters

- Add the areas.

_____ + _____ = _____ square meters



1 square = 1 square meter

Another Way Use the area formula for a rectangle.

A Rose Garden

$$A = b \times h$$

$$= \underline{\hspace{1cm}} \times \underline{\hspace{1cm}}$$

$$= \underline{\hspace{1cm}} \text{ square meters}$$

B Herb Garden

$$A = b \times h$$

$$= \underline{\hspace{1cm}} \times \underline{\hspace{1cm}}$$

$$= \underline{\hspace{1cm}} \text{ square meters}$$

- Add the areas.

_____ + _____ = _____ square meters

So, the total area is _____ square meters.



MATHEMATICAL PRACTICES 1

Analyze Is there another way you could divide the figure to find the total area? Explain.

Example

Greg is laying carpet in the space outside his laundry room. The diagram shows where the carpet will be installed. The space is made of combined rectangles. What is the area of the carpeted space?

You can find the area using addition or subtraction.

One Way Use addition.

Rectangle A

$$\begin{aligned} A &= b \times h \\ &= 8 \times \underline{\hspace{2cm}} \\ &= \underline{\hspace{2cm}} \end{aligned}$$

Rectangle B

$$\begin{aligned} A &= b \times h \\ &= \underline{\hspace{2cm}} \times 17 \\ &= \underline{\hspace{2cm}} \end{aligned}$$

Sum of the areas:

$$\underline{\hspace{2cm}} + \underline{\hspace{2cm}} = \underline{\hspace{2cm}} \text{ square feet}$$

Another Way Use subtraction.

Area of whole space

$$\begin{aligned} A &= b \times h \\ &= 24 \times \underline{\hspace{2cm}} \\ &= \underline{\hspace{2cm}} \end{aligned}$$

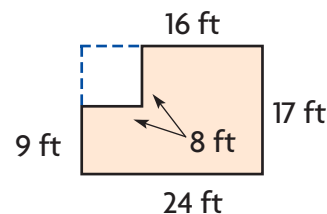
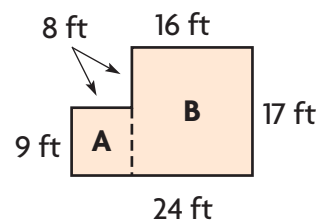
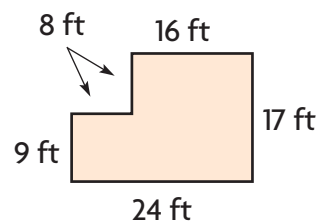
Area of missing section

$$\begin{aligned} A &= b \times h \\ &= \underline{\hspace{2cm}} \times \underline{\hspace{2cm}} \\ &= \underline{\hspace{2cm}} \end{aligned}$$

Difference between the areas:

$$\underline{\hspace{2cm}} - \underline{\hspace{2cm}} = \underline{\hspace{2cm}} \text{ square feet}$$

So, the area of the carpeted space is $\underline{\hspace{2cm}}$ square feet.



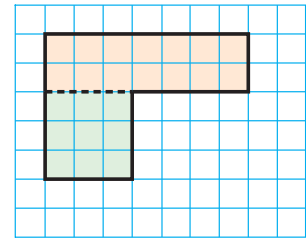
- Is there another way you could divide the figure to find the total area? Explain.

Name _____

Share and Show

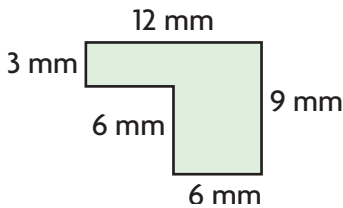


1. Explain how to find the total area of the figure.

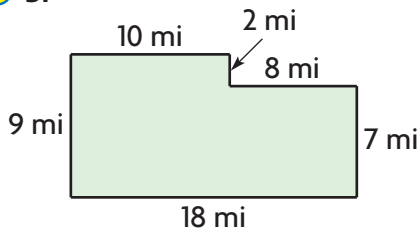


Find the area of the combined rectangles.

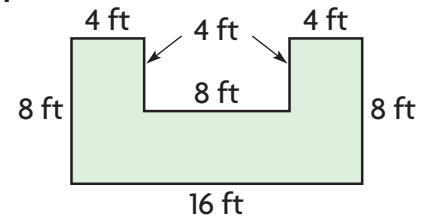
2.



3.



4.



Math Talk

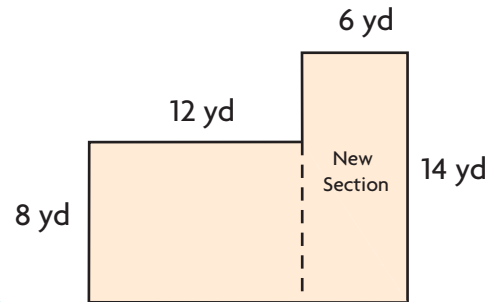
MATHEMATICAL PRACTICES 6

Describe the characteristics of combined rectangles.

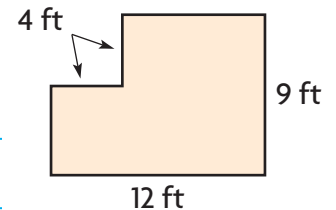
On Your Own

Find the area of the combined rectangles.

5. **MATHEMATICAL PRACTICE 6 Attend to Precision** Jamie's mom wants to enlarge her rectangular garden by adding a new rectangular section. The garden is now 96 square yards. What will the total area of the garden be after she adds the new section?



6. **GO DEEPER** Explain how to find the perimeter and area of the combined rectangles at the right.



Unlock the Problem



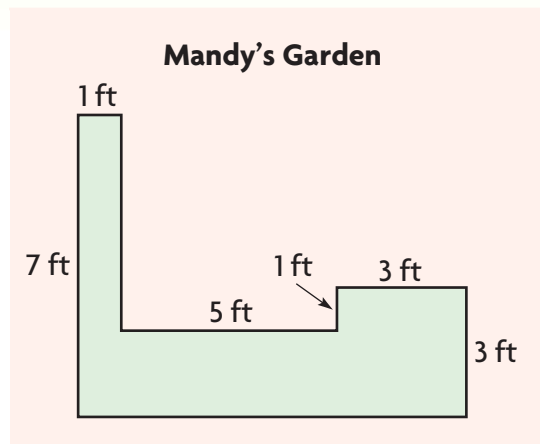
7. **THINK SMARTER** The diagram shows the layout of Mandy's garden. The garden is the shape of combined rectangles. What is the area of the garden?

a. What do you need to find?

b. How can you divide the figure to help you find the total area?

c. What operations will you use to find the answer?

d. Draw a diagram to show how you divided the figure. Then show the steps to solve the problem.



So, the area of the garden is _____.

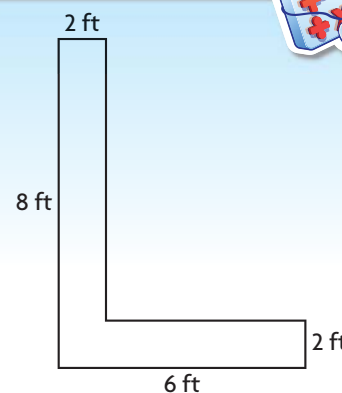
Personal Math Trainer

8. **THINK SMARTER +** Workers are painting a large letter L for an outdoor sign. The diagram shows the dimensions of the L. For numbers 8a–8c, select Yes or No to tell whether you can add the products to find the area that the workers will paint.

8a. 2×8 and 2×4 Yes No

8b. 2×6 and 2×8 Yes No

8c. 2×6 and 6×2 Yes No



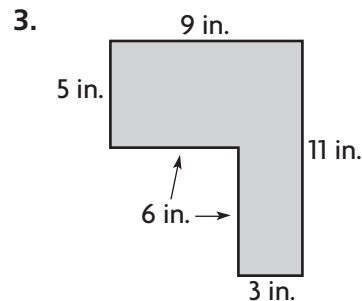
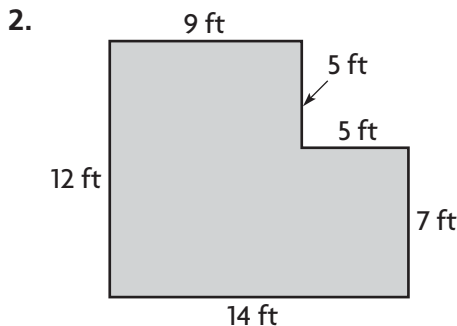
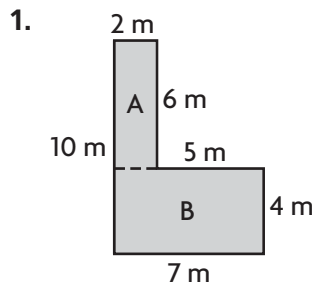
Name _____

Area of Combined Rectangles



COMMON CORE STANDARD—4.MD.A.3
Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit.

Find the area of the combined rectangles.



Area A = 2×6 ,
Area B = 7×4
 $12 + 28 = 40$

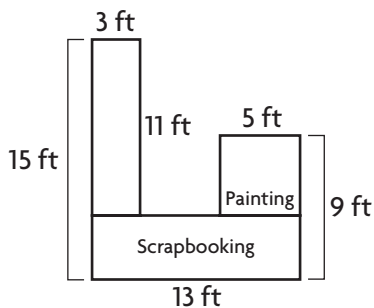
40 square meters

Problem Solving



Use the diagram for 4–5.

Nadia makes the diagram below to represent the counter space she wants to build in her craft room.



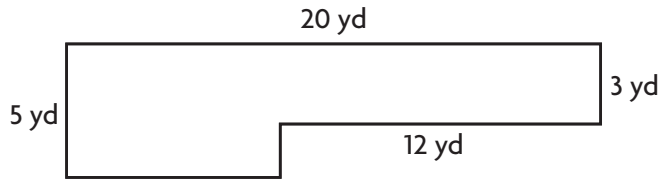
4. What is the area of the space that Nadia has shown for scrapbooking?

5. What is the area of the space she has shown for painting?

6. **WRITE** *Math* Write a word problem that involves combined rectangles. Include a diagram and the solution.

Lesson Check (4.MD.A.3)

1. What is the area of the combined rectangles below?



2. Marquis is redecorating his bedroom. What could Marquis use the area formula to find?

Spiral Review (4.OA.B.4, 4.MD.A.1, 4.MD.A.3)

3. Giraffes are the tallest land animals. A male giraffe can grow as tall as 6 yards. How tall would the giraffe be in feet?

4. Drew purchased 3 books each with a different price, for \$24. The cost of each book was a multiple of 4. What could be the prices of the 3 books?

5. Esmeralda has a magnet in the shape of a square. Each side of the magnet is 3 inches long. What is the perimeter of her magnet?

6. What is the area of the rectangle below?

