

Algebra

Key Idea

You can use the formula for the area of a rectangle to find a formula for the area of a parallelogram.

Vocabulary

- base
- height

Materials

- grid paper
- ruler
- scissors



Think It Through

- I know that **rectangles** and **parallelograms** both have **parallel opposite sides**.
- I can **make a model** or **use a formula** to find the areas of parallelograms.

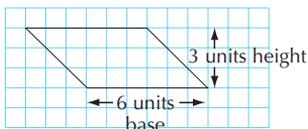
Areas of Parallelograms

LEARN

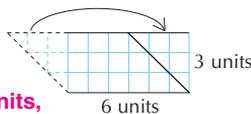
Activity

How can you use rectangles to find the areas of parallelograms?

- a. Copy this parallelogram on grid paper. It has a **base** of 6 units and a **height** of 3 units.



- b. Cut out the parallelogram and draw a dotted line to form a right triangle.
- c. Cut out the triangle and move it to the opposite side of the parallelogram.
- d. What shape did you create? What are its base and height? What is its area? Use counting to find the area of your original parallelogram. **Rectangle; $b = 6$ units, $h = 3$ units; 18 units^2 ; 18 units^2**



WARM UP

Find the area of each rectangle.

- $l = 6 \text{ in.}$, $w = 4 \text{ in.}$
 24 in^2
- $l = 5.2 \text{ cm}$, $w = 3.5 \text{ cm}$
 18.2 cm^2
- $l = 25 \text{ ft}$, $w = 12 \text{ ft}$
 300 ft^2

How can you use a formula to find the area of a parallelogram?

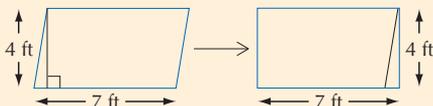
Example

To find the area of a parallelogram, adapt the formula for the area of a rectangle—just substitute base and height for length and width.

$$A = \text{base} \times \text{height}$$

$$A = b \times h$$

$$A = 7 \text{ ft} \times 4 \text{ ft} = 28 \text{ ft}^2$$



Talk About It

1. **Connections** In the Example, which parts of the parallelogram and the rectangle are congruent? **The base of the parallelogram is congruent to the length of the rectangle, and the height of the parallelogram is congruent to the width of the rectangle.**



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More Examples

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