Lesson 15 Area of Rectangles and Parallelograms

Here's How

Area is the number of square units needed to cover a shape or figure.

Find the area of this rectangle.

The length \( (l) \) of this rectangle is 3 cm. The width \( (w) \) of this rectangle is 2 cm.

This is the formula for finding the area of a rectangle. \( \text{Area equals length times width} \).

\[
A = l \cdot w = 3 \text{ cm} \cdot 2 \text{ cm} = 6 \text{ cm}^2
\]

Use this formula to find the area \( (A) \) of a rectangle.

It takes 6 square centimeters to cover this rectangle. The area is 6 cm².

Find the area of this parallelogram.

The base \( (b) \) of this parallelogram is 4 m. The height \( (h) \) of this parallelogram is 3 m.

This is the formula for finding the area of a parallelogram. \( \text{Area equals base times height} \).

\[
A = b \cdot h = 4 \text{ m} \cdot 3 \text{ m} = 12 \text{ cm}^2
\]

Use this formula to find the area of a parallelogram.

The area is 12 square meters, or 12 m².

Try These

Find each area.

Be sure to include cm² or m² in your answer.

1. \[
A = 4 \text{ cm} \cdot 3 \text{ cm} = __________
\]

2. \[
A = 7 \text{ m} \cdot 5 \text{ m} = __________
\]

Answers: 1. 12 cm², 2. 35 m²
Find each area.

1. \[ A = l \cdot w = 5 \text{ m} \cdot 4 \text{ m} = 20 \text{ m}^2 \]

2. \[ A = b \cdot h = 10 \text{ cm} \cdot 5 \text{ cm} = 50 \text{ cm}^2 \]

3. \[ A = \frac{1}{2} (b_1 + b_2)h = \frac{1}{2} (5 \text{ m} + 6 \text{ m}) \cdot 5 \text{ m} = 32.5 \text{ m}^2 \]

4. \[ A = \frac{1}{2} (b_1 + b_2)h = \frac{1}{2} (3 \text{ cm} + 4 \text{ cm}) \cdot 3 \text{ cm} = 10.5 \text{ cm}^2 \]

Since the sides of a square all have the same measure, use the formula \( A = s \cdot s \).

5. \[ A = 3 \text{ cm} \cdot 3 \text{ cm} = 9 \text{ cm}^2 \]

6. \[ A = 5 \text{ m} \cdot 5 \text{ m} = 25 \text{ m}^2 \]

7. \[ A = \frac{1}{2} \cdot 8.5 \text{ m} \cdot 7.5 \text{ m} = 31.125 \text{ m}^2 \]

8. \[ A = 8 \text{ cm} \cdot 2 \text{ cm} = 16 \text{ cm}^2 \]

9. The storage area of a moving van is 6 meters long and 3 meters wide. How many square meters of storage space does the van have?

\[ A = 6 \text{ m} \cdot 3 \text{ m} = 18 \text{ m}^2 \]