

Area and Perimeter of Rectangles

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CHAPTER

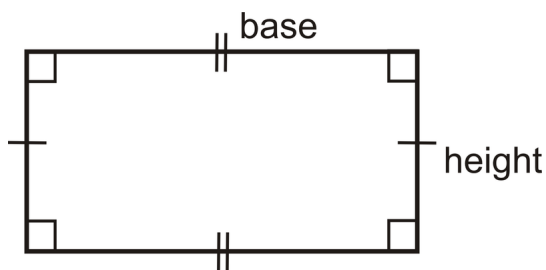
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Area and Perimeter of Rectangles

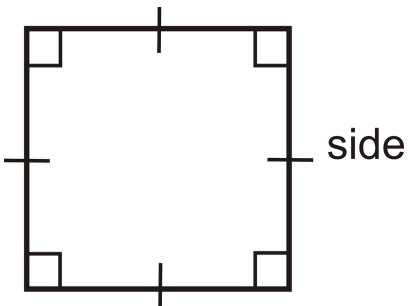
Here you'll learn how to find the area and perimeter of a rectangle given its base and height.

Area and Perimeter of Rectangles

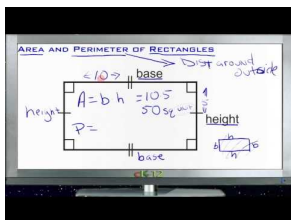
To find the **area of a rectangle**, calculate $A = bh$, where b is the base (width) and h is the height (length). The **perimeter of a rectangle** will always be $P = 2b + 2h$.



If a rectangle is a square, with sides of length s , then perimeter is $P_{\text{square}} = 2s + 2s = 4s$ and area is $A_{\text{square}} = s \cdot s = s^2$.



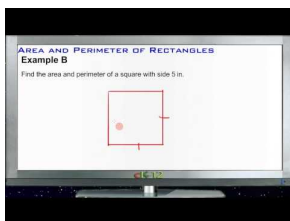
What if you were given a rectangle and the size of its base and height? How could you find the total distance around the rectangle and the amount of space it takes up?



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Examples**Example 1**

The area of a square is 75 in^2 . Find the perimeter.

To find the perimeter, we need to find the length of the sides.

$$A = s^2 = 75 \text{ in}^2$$

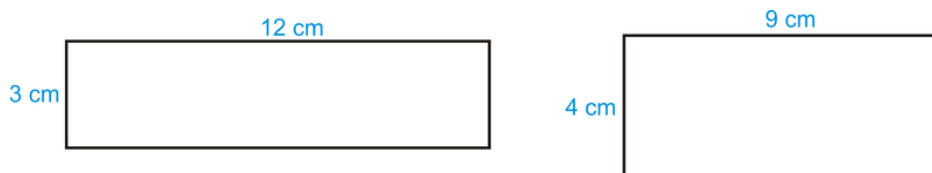
$$s = \sqrt{75} = 5\sqrt{3} \text{ in}$$

From this, $P = 4(5\sqrt{3}) = 20\sqrt{3} \text{ in}$.

Example 2

Draw two different rectangles with an area of 36 cm^2 .

Think of all the different factors of 36. These can all be dimensions of the different rectangles.



Other possibilities could be 6×6 , 2×18 , and 1×36 .

Example 3

Find the area and perimeter of a rectangle with sides 4 cm by 9 cm.



The perimeter is $4 + 9 + 4 + 9 = 26 \text{ cm}$. The area is $A = 9 \cdot 4 = 36 \text{ cm}^2$.

Example 4

Find the area and perimeter of a square with side 5 in.

The perimeter is $4(5) = 20in$ and the area is $5^2 = 25 in^2$.

Example 5

Find the area and perimeter of a rectangle with sides 13 m and 12 m.

The perimeter is $2(13) + 2(12) = 50 m$. The area is $13(12) = 156 m^2$.

Review

1. Find the area and perimeter of a square with sides of length 12 in.
2. Find the area and perimeter of a rectangle with height of 9 cm and base of 16 cm.
3. Find the area and perimeter of a rectangle if the height is 8 and the base is 14.
4. Find the area and perimeter of a square if the sides are 18 ft.
5. If the area of a square is $81 ft^2$, find the perimeter.
6. If the perimeter of a square is 24 in, find the area.
7. The perimeter of a rectangle is 32. Find two different dimensions that the rectangle could be.
8. Draw two different rectangles that haven an area of $90 mm^2$.
9. True or false: For a rectangle, the bigger the perimeter, the bigger the area.
10. Find the perimeter and area of a rectangle with sides 17 in and 21 in.

Review (Answers)

To see the Review answers, open this [PDF file](#) and look for section 10.1.