

Example: Perimeter and Area of Similar Polygons**Problem:**

Polygon A is similar to polygon B.
The ratio of the sides of polygon A to polygon B is 3:5.
The perimeter of polygon A is 126 feet.
The area of polygon B is 250 square feet.
What is the perimeter of polygon B?
What is the area of polygon A?

Solution:

We are told that the ratio of the sides of polygon A to the sides of polygon B equals 3 to 5.

This means that the ratio of the perimeter of polygon A to the perimeter of polygon B is also 3 to 5.

We are given that the perimeter of polygon A is 126 and we are asked to find the perimeter of polygon B. This gives us the proportion 3 divided by 5 equals 126 divided by x .

Cross multiply to get 3 times x equals 5 times 126.

$3x$ equals 630, which means that x equals 210.

The perimeter of polygon B is 210 feet.

Since the ratio of the sides is 3 to 5, the ratio of the area of polygon A to the area of polygon B is 3 squared to 5 squared, which is 9 to 25.

Using this information and the fact that the area of polygon B is 250, we can write the proportion 9 divided by 25 equals y divided by 250. Notice that the 250 was placed on the bottom, because that is the area of polygon B.

Cross multiply to get 9 times 250 equals 25 times y .

2250 equals $25y$, which means that y equals 90.

The area of polygon A is 90 square feet.