

Use these rectangles to answer questions 1-4 on the similar figures activity.

This theorem in your notes sums up the relationships that questions 3 and 4 were asking about.

Theorem 10-7

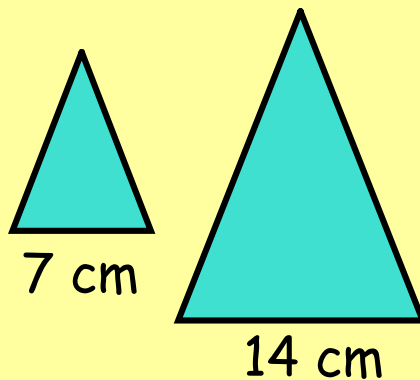
Perimeters and Areas of Similar Figures

If the similarity ratio of two similar figures is $\frac{a}{b}$, then

(1) the ratio of their perimeters is $\frac{a}{b}$ and

(2) the ratio of their areas is $\frac{a^2}{b^2}$.

a and b are the lengths of corresponding sides from each figure.



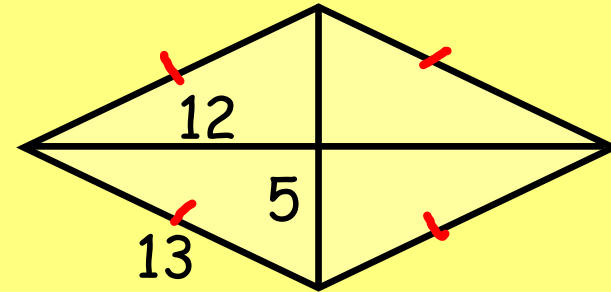
The similarity ratio for these 2 triangles is $14/7$ or 2 .

So, the perimeter of the large triangle is 2 times larger than the perimeter of the small triangle.

And, the area of the large triangle is 2^2 or 4 times larger than the area of the small triangle.

Finding Perimeter and Area of Similar Figures

The perimeter of this rhombus is 52 units and its area is 120 units^2 . If you dilate the rhombus by a scale factor of $1/3$, what is the perimeter and area of the new rhombus?



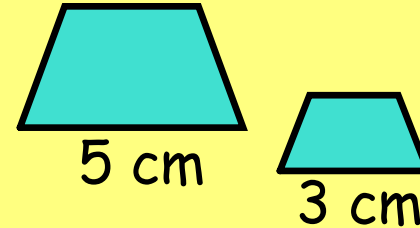
$$P = 52 \cdot \frac{1}{3} = 17.\bar{3} \text{ units}$$

$$A = 120 \cdot \frac{1}{9} = 13.\bar{3} \text{ units}^2$$

↑
area ratio = $(1/3)^2 = 1/9$

Finding Perimeter and Area of Similar Figures

The two trapezoids are similar. If the area of the larger one is 20 cm^2 , find the area of the smaller one.



1) Find the similarity ratio (scale factor) of the small trapezoid to the large trapezoid.

$$\frac{3}{5}$$

2) Square the similarity ratio to get the area ratio, then use it to find the new area.

$$\left(\frac{3}{5}\right)^2 = \frac{9}{25}$$

$$A = 20 \cdot \frac{9}{25} = \boxed{7.2 \text{ cm}^2}$$

An 8 ft by 10 ft area rug sells for \$165.59.

Based on this price, what would you expect to pay for an area rug that measures 12 ft by 15 ft.

1) Find the similarity ratio (scale factor) of the large rug to the small rug.

$$\frac{12}{8} = \frac{3}{2}$$

2) Square the similarity ratio to get the area ratio, then use it to get the new price.

$$\left(\frac{3}{2}\right)^2 = \frac{9}{4}$$

$$165.59 \cdot \frac{9}{4} = \boxed{\$372.58}$$



\$165.59 from Overstock.com

Shag Ivory/ Grey Trellis Rug - 8' X 10' - 8' X 10' (Ivory/Grey - 8 ...

★★★★★ (104)