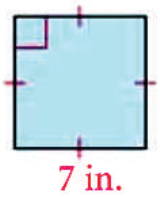
Name:_____Per:___ **10-4 Perimeters and Areas of Similar Figures**

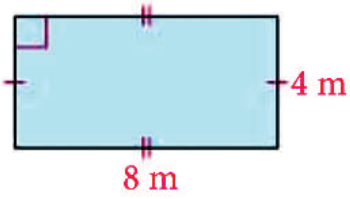
Warm-up

Find the perimeter and area of each figure.

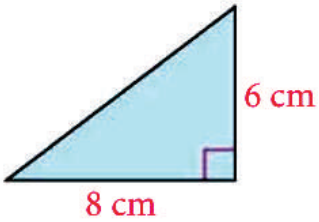
1.



2.



3.



Find the perimeter and area of each rectangle with the given base and height.

4. $b = 1$ cm, $h = 3$ cm

5. $b = 2$ cm, $h = 6$ cm

Notes

Perimeters and Areas of Similar Figures

Rectangle	Perimeter	Area
Original		
I		
II		
III		

Rectangle	Similarity Ratio	Ratio of Perimeters	Ratio of Areas
I to Original			
II to Original			
III to Original			

Notes

Theorem 10-7 Perimeters and Areas of Similar Figures

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

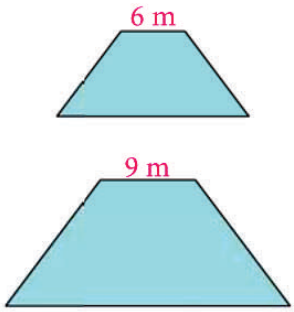
(1) the [ ] of their [ ] is [ ] and

(2) the [ ] of their [ ] is [ ].

Finding Ratios in Similar Figures

Example:

a. Find the ratio (smaller to larger) of the perimeters.



b. Find the ratio (smaller to larger) of the areas.

Example:

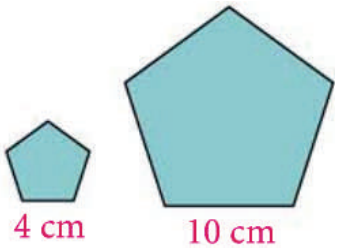
Two similar polygons have corresponding sides in the ratio 5 : 7.

a. Find the ratio of their perimeters.

b. Find the ratio of their areas.

Example:

Multiple Choice The area of the smaller regular pentagon is about 27.5 cm^2. What is the best approximation for the area of the larger regular pentagon?



(A) 11 cm^2

(B) 69 cm^2

(C) 172 cm^2

(D) 275 cm^2

Finding Similarity and Perimeter Ratios

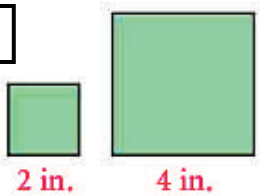
Example:

The areas of two similar triangles are 50 cm^2 and 98 cm^2. What is the similarity ratio? What is the ratio of their perimeters?

Assignment:

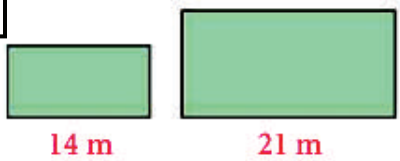
The figures in each pair are similar. Compare the first figure to the second. Give the ratio of the perimeters and the ratio of the areas.

1.

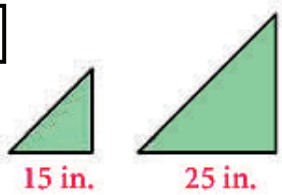


2.

3.

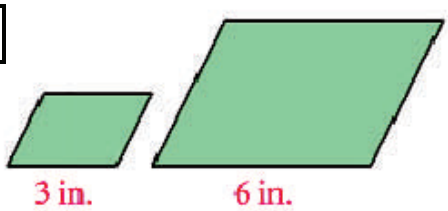


4.



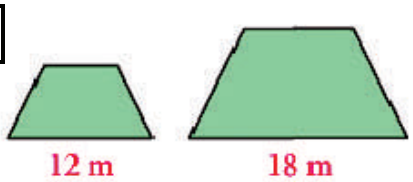
The figures in each pair are similar. The area of one figure is given. Find the area of the other figure to the nearest whole number.

5.



Area of smaller parallelogram = 6 $in.^2$

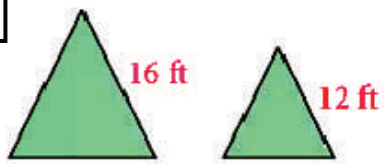
6.



Area of larger trapezoid = 121 m^2

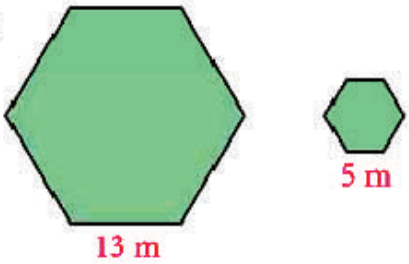
The figures in each pair are similar. The area of one figure is given. Find the area of the other figure to the nearest whole number.

7.



Area of larger triangle = 105 ft^2

8.



Area of smaller hexagon = 65 m^2

9.

The trapezoids below are similar. The area of the larger is 15 square feet. Find the area of the smaller trapezoid to the nearest tenth of a foot.

(A) 29.4 (B) 21 (C) 10.7 (D) 7.7

10.

Find the $m\angle x$ in the figure at the right.

(A) 56° (C) 108°

(B) 74° (D) 124°