English Spanish

5 Chapter Review

Check It Out
Vocabulary Help
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Review Key Vocabulary

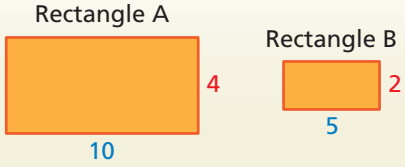
similar figures, *p. 196*
corresponding angles, *p. 196*
corresponding sides, *p. 196*
indirect measurement, *p. 209*
scale drawing, *p. 214*
scale model, *p. 214*
scale, *p. 214*
scale factor, *p. 215*
transformation, *p. 222*
image, *p. 222*
translation, *p. 222*
reflection, *p. 228*
line of reflection, *p. 228*
rotation, *p. 234*
center of rotation, *p. 234*
angle of rotation, *p. 234*

Review Examples and Exercises

5.1 Identifying Similar Figures *(pp. 194–199)*

Is Rectangle A similar to Rectangle B?

Each figure is a rectangle. So, corresponding angles have the same measure. Check to see if corresponding side lengths are proportional.



$\frac{\text{Length of A}}{\text{Length of B}} = \frac{10}{5} = 2$ $\frac{\text{Width of A}}{\text{Width of B}} = \frac{4}{2} = 2$

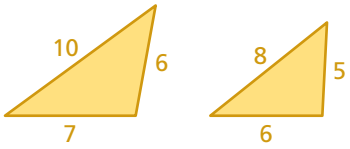
Proportional

∴ So, Rectangle A is similar to Rectangle B.

Exercises

Tell whether the two figures are similar. Explain your reasoning.

1.



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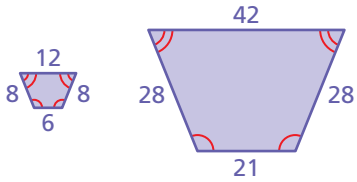

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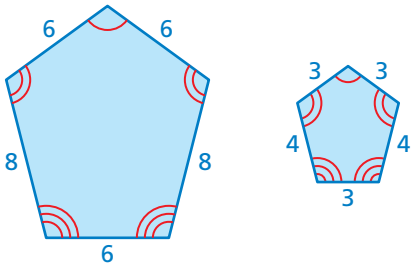
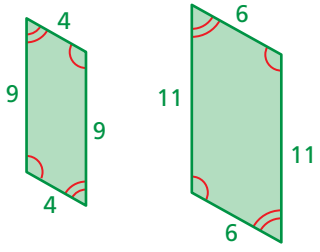


4.



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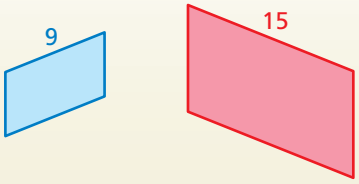
5.2 Perimeters and Areas of Similar Figures *(pp. 200–205)*

Find the ratio (red to blue) of the perimeters of the similar parallelograms.

$$\frac{\text{Perimeter of red parallelogram}}{\text{Perimeter of blue parallelogram}} = \frac{15}{9}$$

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

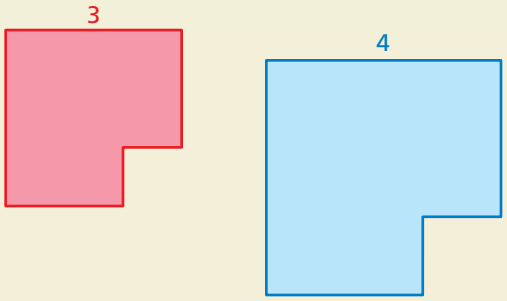


∴ The ratio of the perimeters is $\frac{5}{3}$.

Find the ratio (red to blue) of the areas of the similar figures.

$$\frac{\text{Area of red figure}}{\text{Area of blue figure}} = \left(\frac{3}{4}\right)^2$$

$$= \frac{9}{16}$$

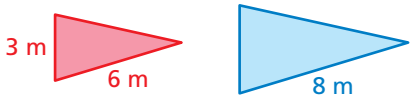


∴ The ratio of the areas is $\frac{9}{16}$.

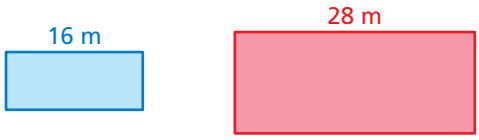
Exercises

The two figures are similar. Find the ratios (red to blue) of the perimeters and of the areas.

5.



6.



7. PHOTOS Two photos are similar. The ratio of the corresponding side lengths is 3 : 4. What is the ratio of their areas?

5.3 Finding Unknown Measures in Similar Figures *(pp. 206–211)*

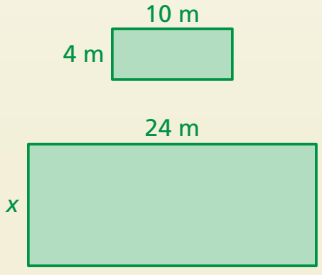
The two rectangles are similar. Find the value of x.

Corresponding side lengths of similar figures are proportional.
So, use a proportion to find x.

$$\frac{10}{24} = \frac{4}{x}$$ Write a proportion.

$$10x = 96$$ Use Cross Products Property.

$$x = 9.6$$ Divide each side by 10.

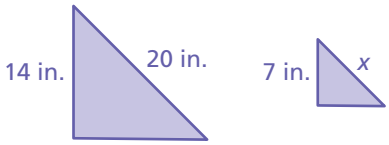


∴ So, x is 9.6 meters.

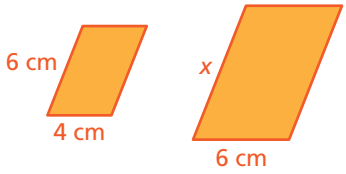
Exercises

The polygons are similar. Find the value of x.

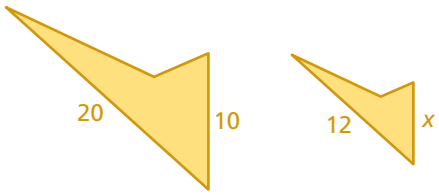
8.



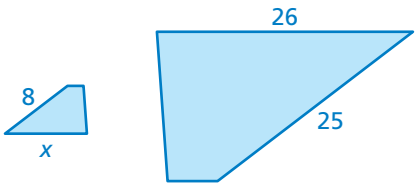
9.



10.



11.



5.4 Scale Drawings *(pp. 212–217)*

A lighthouse is 160 feet tall. A scale model of the lighthouse has a scale of 1 in. : 8 ft. How tall is the model of the lighthouse?

$$\frac{1 \text{ in.}}{8 \text{ ft}} = \frac{x \text{ in.}}{160 \text{ ft}}$$ ← model height; ← actual height

$$\frac{1 \text{ in.}}{8 \cancel{\text{ ft}}} \cdot 160 \cancel{\text{ ft}} = \frac{x \text{ in.}}{160 \text{ ft}} \cdot 160 \text{ ft}$$ Multiply each side by 160 ft.

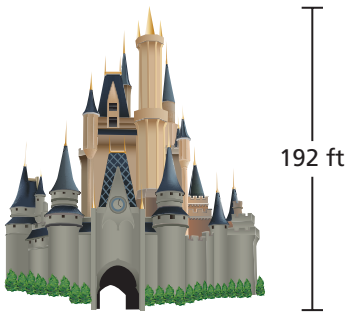
$$20 = x$$ Simplify.

∴ The model of the lighthouse is 20 inches tall.

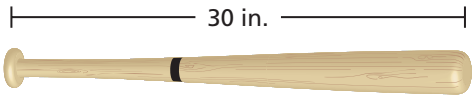
Exercises

Use a centimeter ruler to measure the segment shown. Find the scale of the drawing.

12.



13.

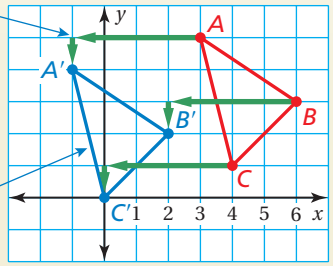


5.5 Translations *(pp. 220–225)*

Translate the red triangle 4 units left and 1 unit down. What are the coordinates of the image?

Move each vertex 4 units left and 1 unit down.

Connect the vertices. Label as A', B', and C'.

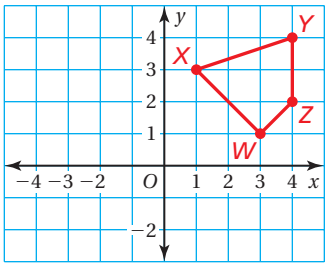


∴ The coordinates of the image are $A'(-1, 4)$, $B'(2, 2)$, and $C'(0, 0)$.

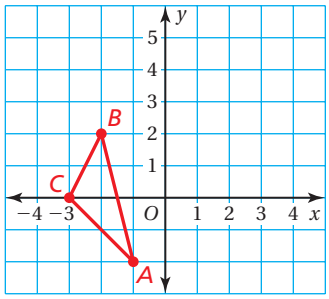
Exercises

Translate the figure as described. What are the coordinates of the image?

14. 3 units left and 2 units down

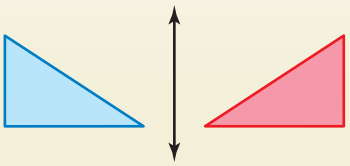


15. 5 units right and 4 units up



5.6 Reflections *(pp. 226–231)*

Tell whether the blue figure is a reflection of the red figure.



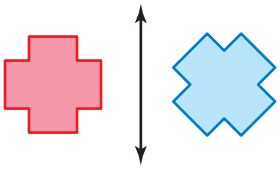
The red figure can be *flipped* to form the blue figure.

∴ So, the blue figure is a reflection of the red figure.

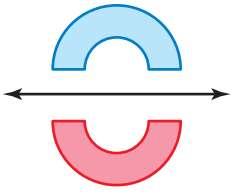
Exercises

Tell whether the blue figure is a reflection of the red figure.

16.

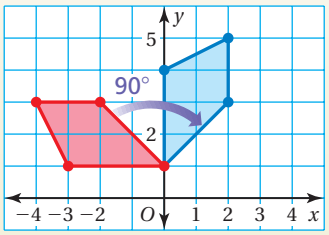


17.



5.7 Rotations *(pp. 232–237)*

Tell whether the blue figure is a rotation of the red figure about a vertex. If so, give the angle and direction of rotation.

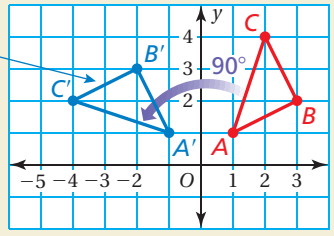


The red figure can be turned 90° clockwise about (0, 1) to form the blue figure.

So, the blue figure is a 90° clockwise rotation of the red figure.

Rotate the red triangle 90° counterclockwise about the origin. What are the coordinates of the image?

Plot A', B', and C'. Connect the vertices.

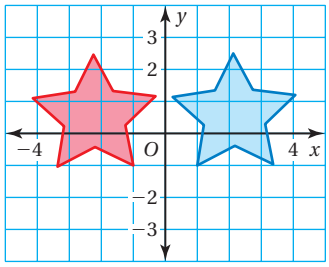


The coordinates of the image are $A'(-1, 1)$, $B'(-2, 3)$, and $C'(-4, 2)$.

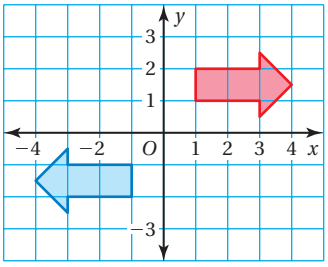
Exercises

Tell whether the blue figure is a rotation of the red figure about the origin. If so, give the angle and direction of rotation.

18.

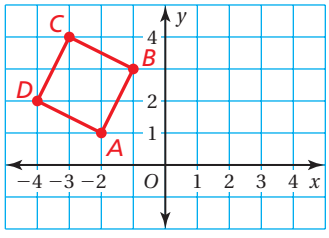


19.



Rotate the figure as described. What are the coordinates of the image?

20. 270° counterclockwise about the origin



21. 180° clockwise about vertex M.