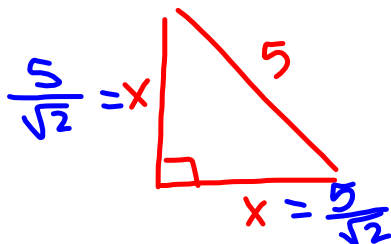
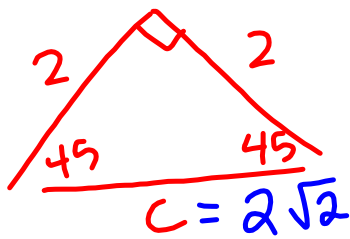


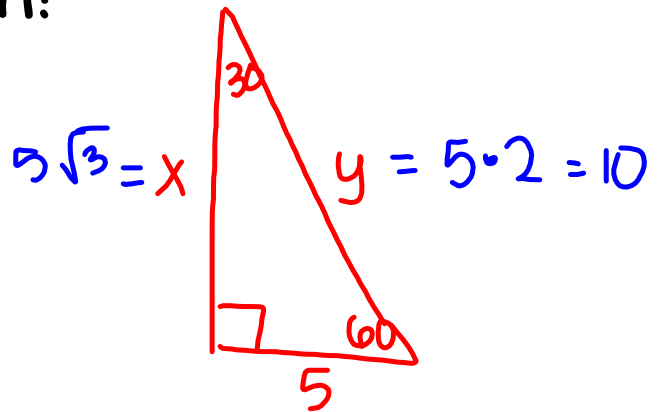
Questions on Special Right Triangles?

We will be taking our content mastery quiz soon!



side length \rightarrow hypotenuse
 • by $\sqrt{2}$

hypotenuse \rightarrow side length
 \div by $\sqrt{2}$



$\rightarrow \sqrt{3} = x$

shorter leg \rightarrow longer leg
 • by $\sqrt{3}$

longer leg \rightarrow shorter leg
 \div by $\sqrt{3}$

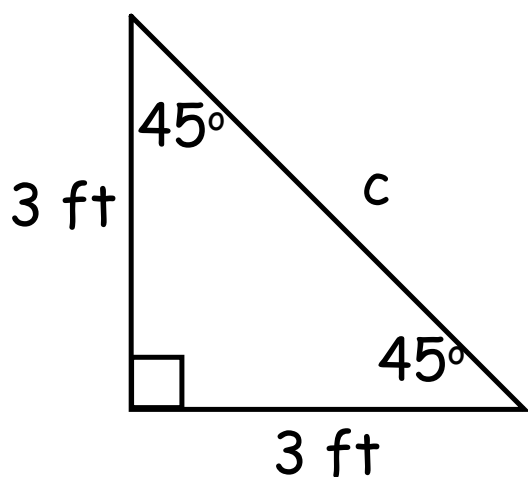
shorter leg \rightarrow hypotenuse
 • by 2

hypotenuse \rightarrow shorter leg
 \div by 2

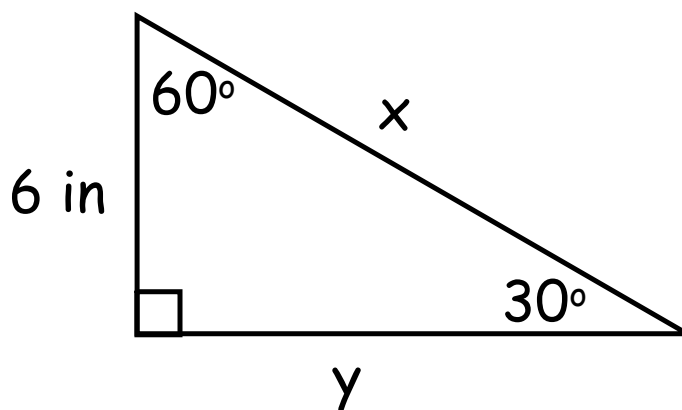
Content Mastery Quiz Sp. Rt. Tri.

****Show ALL work to receive credit****

1) What is the measure of the hypotenuse?



2) What is the measure of the hypotenuse AND the longer leg?



Big and Small

Dilating Triangles to Create Similar Triangles

4.1

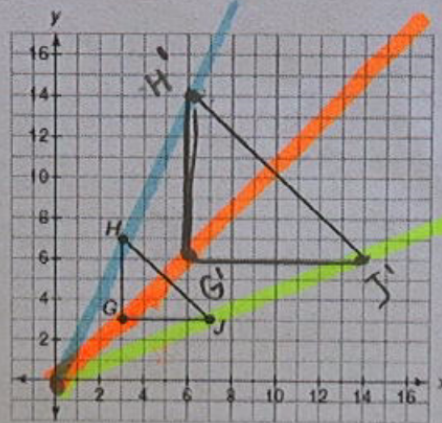
NOT IN YOUR BOOK, WRITE IN YOUR NOTES

A **dilation** is a transformation that produces an image that is the same shape as the original, ^{pre-image} but is a different size. A dilation stretches or shrinks the original figure. The description of a dilation includes the scale factor (or ratio) and the center of the dilation.

PG.266 IN YOUR BOOK

You can use your ~~compass and~~ a straightedge to perform a dilation. Consider $\triangle GHJ$ shown on the coordinate plane. You will dilate the triangle by using the origin as the center and by using a scale factor of 2.

- How will the distance from the center of dilation to a point on the image of $\triangle G'H'J'$ compare to the distance from the center of dilation to a corresponding point on $\triangle GHJ$? Explain your reasoning.

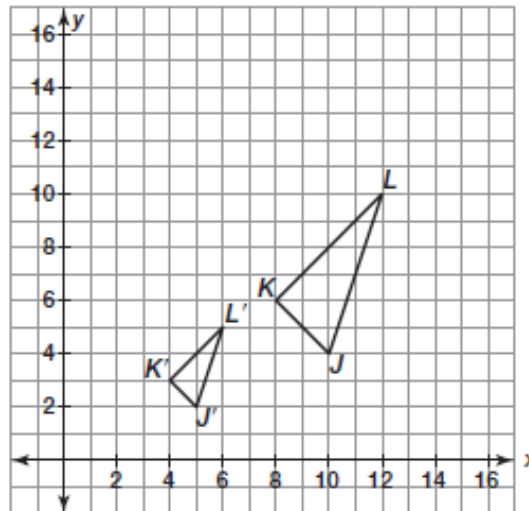


- For each vertex of $\triangle GHJ$, draw a ray that starts at the origin and passes through the vertex.
- Use the duplicate segment construction to locate the vertices of $\triangle G'H'J'$.
- List the coordinates of the vertices of $\triangle GHJ$ and $\triangle G'H'J'$. How do the coordinates of the image compare to the coordinates of the pre-image?

pre-image $G(3,3) \rightarrow G'(6,6)$
 $H(3,7) \rightarrow H'(6,14)$
 $J(7,3) \rightarrow J'(14,6)$
 image

PG.267 IN YOUR BOOK

5. Triangle $J'K'L'$ is a dilation of $\triangle JKL$. The center of dilation is the origin.



- a. List the coordinates of the vertices of $\triangle JKL$ and $\triangle J'K'L'$. How do the coordinates of the image compare to the coordinates of the pre-image?

P.I. $K(8, 6) \rightarrow K'(4, 3)$
 $J(10, 4) \rightarrow J'(5, 2)$
 $L(12, 10) \rightarrow L'(6, 5)$

- b. What is the scale factor of the dilation? Explain your reasoning.

$$\frac{1}{2}$$

- c. How do you think you can use the scale factor to determine the coordinates of the vertices of an image?

Take the coordinates for your pre-image and multiply them by your scale factor to get the coordinates for your image.

6. Use coordinate notation to describe the dilation of point (x, y) when the center of dilation is at the origin using a scale factor of k .

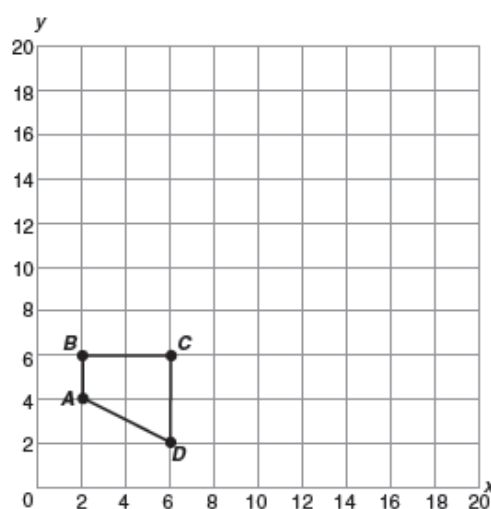
$$\begin{array}{ccc} \text{pre-image} & & \text{image} \\ (x, y) & \longrightarrow & (kx, ky) \end{array}$$

NOT IN YOUR BOOK

1. Use quadrilateral $ABCD$ shown on the grid to complete part (a) through part (c).

- a. On the grid, draw the image of quadrilateral $ABCD$ dilated using a scale factor of 3 with the center of dilation at the origin. Label the image $JKLM$.

- b. On the grid, draw the image of quadrilateral $ABCD$ dilated using a scale factor of 0.5 with the center of dilation at the origin. Label the image $WXYZ$.



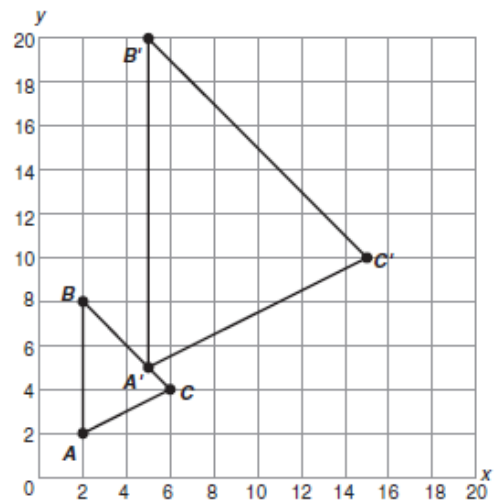
- c. Identify the coordinates of the vertices of quadrilaterals $JKLM$ and $WXYZ$.

NOT IN YOUR BOOK

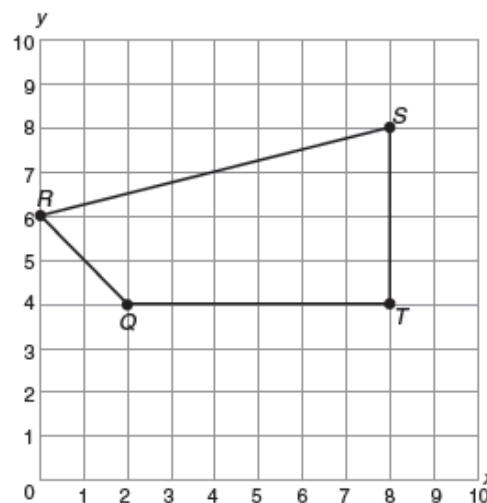
2. The vertices of triangle ABC are $A(-6, 15)$, $B(0, 5)$, and $C(3, 10)$. Without drawing the figure, determine the coordinates of the vertices of the image of triangle ABC dilated using a scale factor of $\frac{1}{3}$ with the center of dilation at the origin. Explain your reasoning.

3. The vertices of trapezoid $WXYZ$ are $W(-1, 2)$, $X(-3, -1)$, $Y(5, -1)$, and $Z(3, 2)$. Without drawing the figure, determine the coordinates of the vertices of the image of trapezoid $WXYZ$ dilated using a scale factor of 5 with the center of dilation at the origin. Explain your reasoning.

5. Triangle $A'B'C'$ is a dilation of $\triangle ABC$ with the center of dilation at the origin. List the coordinates of the vertices of $\triangle ABC$ and $\triangle A'B'C'$. What is the scale factor of the dilation? Explain.



6. On the grid, draw the image of quadrilateral $QRST$ using the dilation $(x, y) \rightarrow (0.75x, 0.75y)$. Label the image $Q'R'S'T'$.

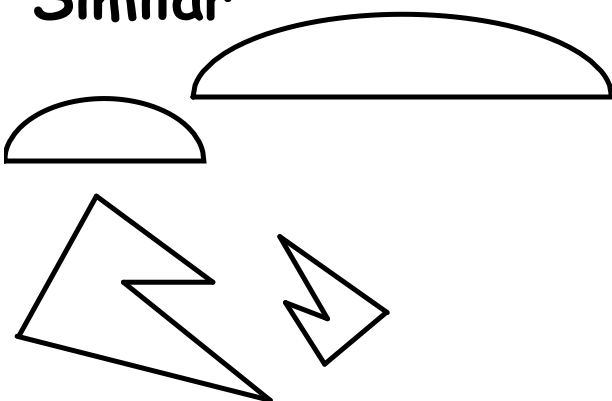


NOT IN YOUR BOOK, WRITE IN NOTES!

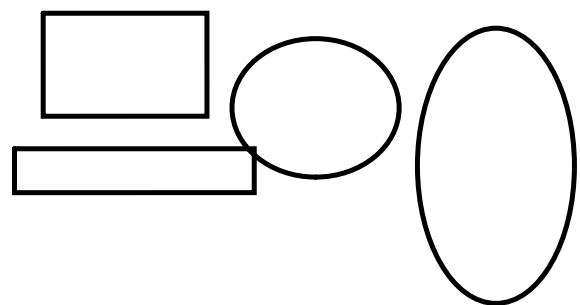
Similar figures are figures that are be^{on p.268} formed by taking the original figure, called the **pre-image**, and performing a series of transformations (rotations, ^{reflections} translations, dilations) to get a new figure, called the **image**.

Similar figures have the same shape, but can have different sizes.

Similar



Not Similar



Homework

Finish 4.1