Questions on Special Right Triangles?

CH 4 PG 257-332

We will be ~~taking our content~~

mastery quiz soon!

$\frac{7}{\sqrt{2}} = X$

45 7 45

$X = \frac{7}{\sqrt{2}} \cdot \frac{\sqrt{2}}{\sqrt{2}} = \frac{7\sqrt{2}}{2}$

$4\sqrt{3} = X$ 30 $y = 4 \cdot 2 = 8$ 60   4

$4 = X$ 4   45   45 $y = 4\sqrt{2}$
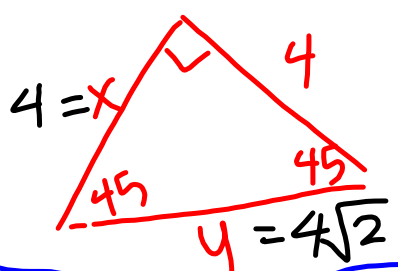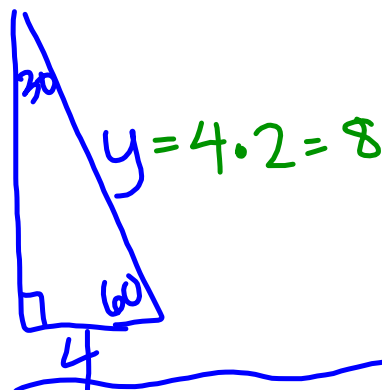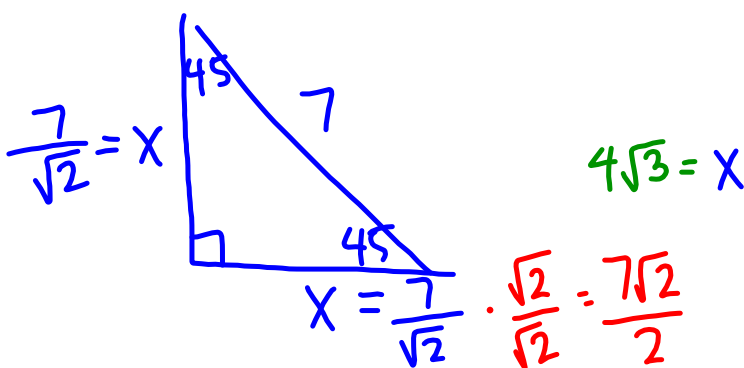
hypotenuse → side lengths
÷ by $\sqrt{2}$

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

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

shorter leg → hypotenuse
• by 2

longer leg → shorter leg
÷ by $\sqrt{3}$

hypotenuse → shorter leg
÷ by 2

Feb 27-8:47 AM

Big and Small
Dilating Triangles to Create Similar Triangles

4.1

pg 260

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, 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.

pre-image

Start with

image

end with

Sep 14-9:16 AM
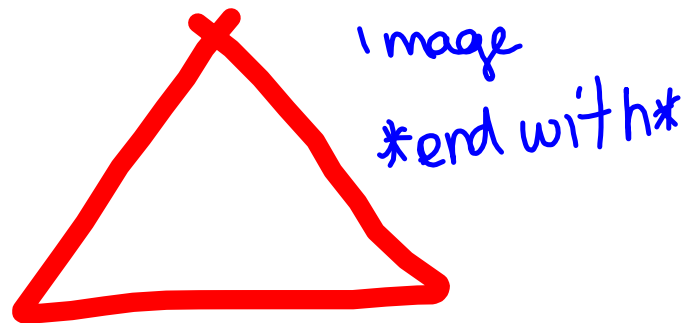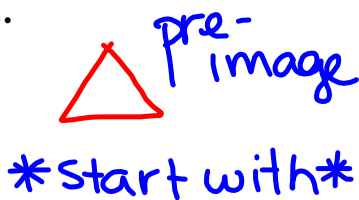
PG.266 IN YOUR BOOK

You can use your ~~compass and~~ a straightedge to perform a dilation. Consider △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.   (0,0)

1. How will the distance from the center of dilation to a point on the image of △G'H'J' compare to the distance from the center of dilation to a corresponding point on △GHJ? Explain your reasoning.
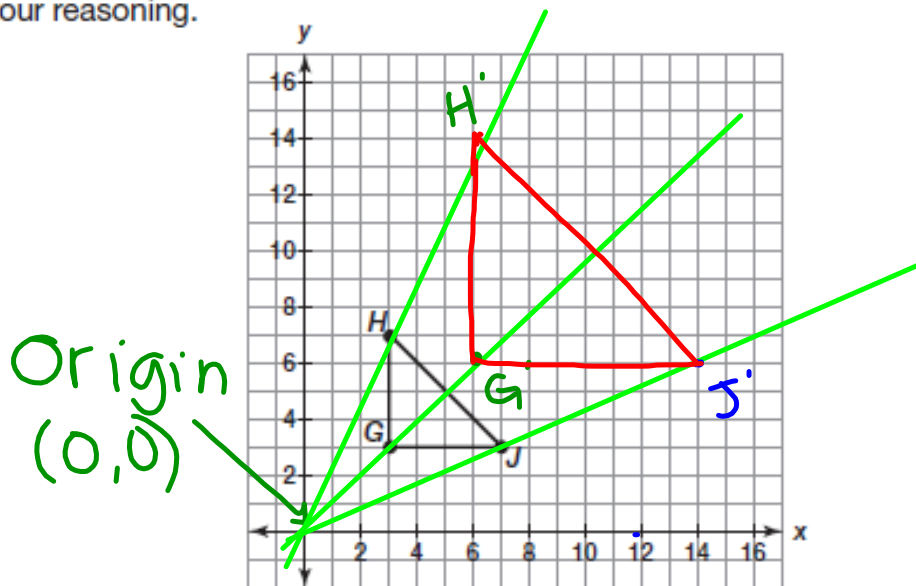
Origin
(0,0)

2. For each vertex of △GHJ, draw a ray that starts at the origin and passes through the vertex.

3. Use the duplicate segment construction to locate the vertices of △G'H'J'.

4. List the coordinates of the vertices of △GHJ and △G'H'J'. How do the coordinates of the image compare to the coordinates of the pre-image?

$$G(3,3) \qquad G'(6,6)$$
$$H(3,7) \xrightarrow{\cdot 2} H'(6,14)$$
$$J(7,3) \qquad J'(14,6)$$

PG.267 IN YOUR BOOK

5. Triangle *J'K'L'* is a dilation of △*JKL*. The center of dilation is the origin.

△J'K'L'
Image

K' (4,3)
J' (5,2)
L' (6,5)
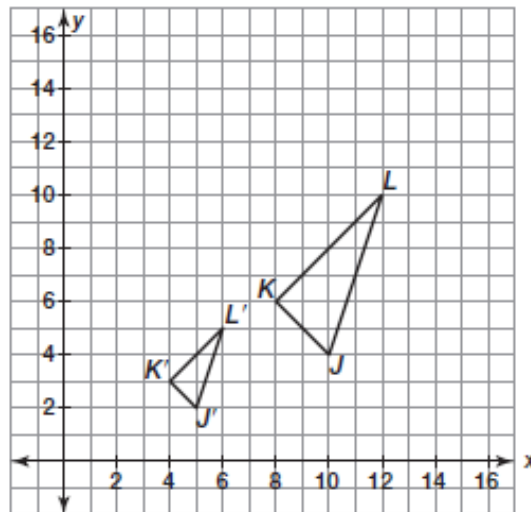
△JKL
pre-image

K (8,6)
J (10,4)
L (12,10)

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

image coordinates are ½ the pre-image coordinates

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

$\frac{1}{2}$; because ÷ by 2 is the same as • by $\frac{1}{2}$

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

The point (x,y) is described as (kx,ky), using coordinate notation

Oct 13-8:33 AM

4

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*.

$$A \rightarrow J\ (6,12)$$
$$B \rightarrow K\ (6,18)$$
$$C \rightarrow L\ (18,18)$$
$$D \rightarrow M\ (18,6)$$

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*.

$$A \rightarrow W\ (1,2)$$
$$B \rightarrow X\ (1,3)$$
$$C \rightarrow Y\ (3,3)$$
$$D \rightarrow Z\ (3,1)$$
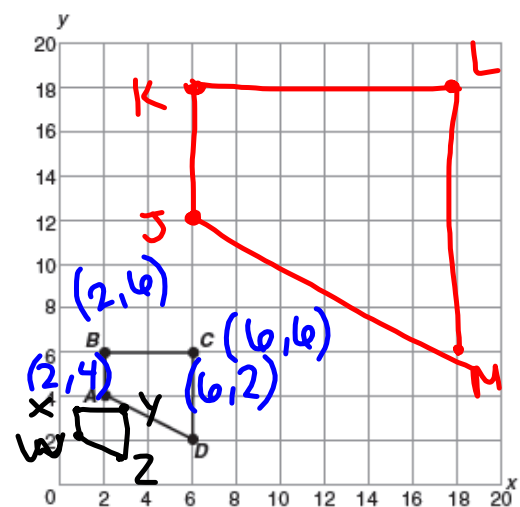
c. Identify the coordinates of the vertices of quadrilaterals *JKLM* and *WXYZ*.

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 △ABC with the center of dilation at the origin. List the coordinates of the vertices of △ABC and △A′B′C′. What is the scale factor of the dilation? Explain.
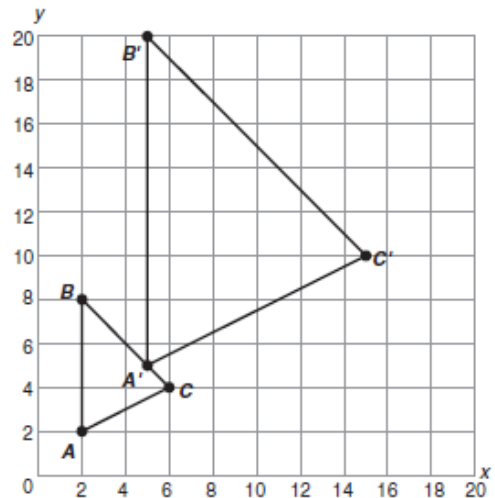
6. On the grid, draw the image of quadrilateral QRST using the dilation $(x, y) \rightarrow (0.75x, 0.75y)$. Label the image Q′R′S′T′.
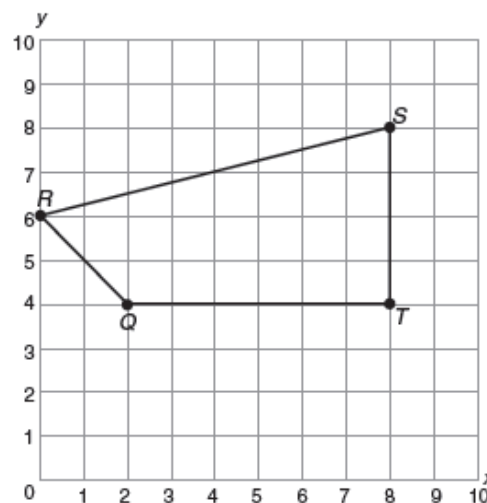
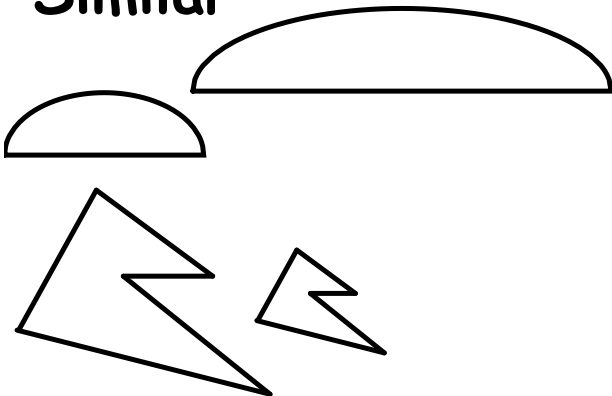NOT IN YOUR BOOK, WRITE IN NOTES!
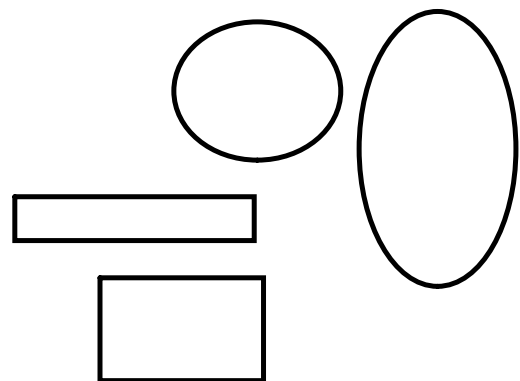
Similar figures are figures that are be pg. 246 formed by taking the original figure, called the **pre-image,** and performing a series of transformations (rotations, reflections translations, dilations) to get a new figure, called the **image**.

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

Similar

Not Similar

Oct 2-3:04 PM

Homework
Finish 4.1