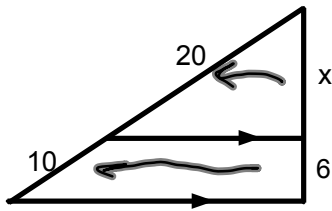


Bellwork 12/12/2011

Find the value of the variable.

1.

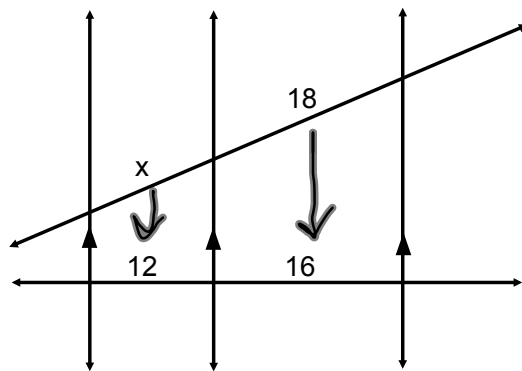


$$\frac{x}{6} = \frac{20}{10}$$

$$10x = 120$$

$$x = 12$$

2.



$$\frac{x}{18} = \frac{12}{16}$$

$$16x = 216$$

$$x = 13.5$$

Geometry
6.7 Perform Similarity Transformations
Standard(s): 3,10

Vocabulary:

- 1. Dilation:** A transformation that stretches or shrinks a figure to create a similar figure.
- 2. Center of Dilation:** A fixed point in which the figure is enlarged or reduced.
- 3. Scale Factor of a Dilation:** The ratio of a side length of the image to the corresponding side length of the original figure.

$$\frac{\text{Final}}{\text{Original}}$$

KEY CONCEPT

For Your Notebook

Coordinate Notation for a Dilation

You can describe a dilation with respect to the origin with the notation $(x, y) \rightarrow (kx, ky)$, where k is the scale factor.

If $0 < k < 1$, the dilation is a reduction. If $k > 1$, the dilation is an enlargement.

Draw a Dilation with a Scale Factor Greater than 1

Draw a dilation of quadrilateral ABCD with vertices A(2,2), B(4,2), C(4,0), D(0,-2). Use a scale factor of 1.5 and label the image FGHJ.

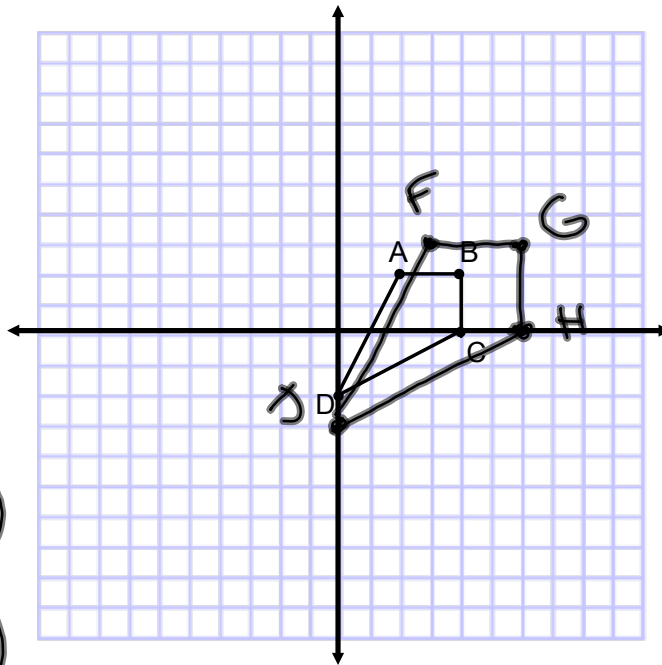
$$R = 1.5$$

$$F(3, 3)$$

$$G(6, 3)$$

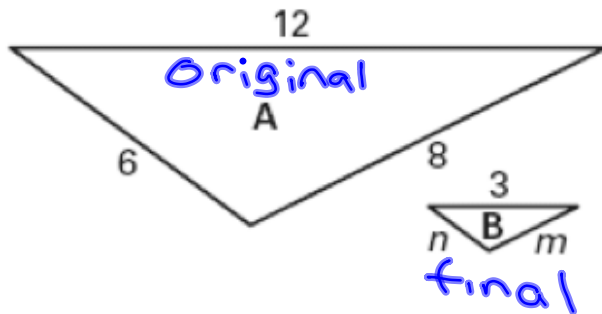
$$H(6, 0)$$

$$J(0, -3)$$



Determine the Type of Dilation

Determine whether the dilation from Figure A to Figure B is a reduction or an enlargement. Then, find the values of the variables.



Reduction

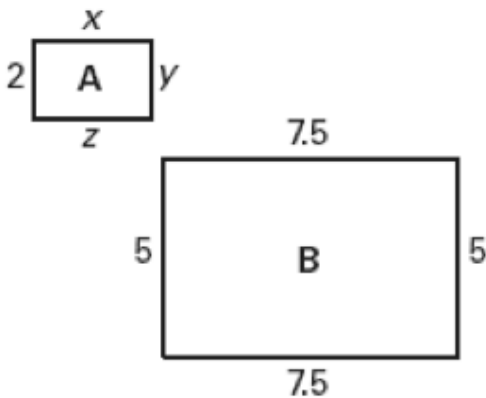
$$\frac{3}{12} = \frac{1}{4} \text{ or } 0.25$$

$$\frac{1}{4} = \frac{m}{8} \quad 4m = 8$$

$$m = 2$$

$$\frac{1}{4} = \frac{n}{6} \quad 4n = 6$$

$$n = 1\frac{1}{2}$$



Enlargement

$$\frac{5}{2} = \frac{7.5}{x} \quad 5x = 15$$

$$x = 3$$

$$\frac{5}{2} = \frac{5}{y} \quad 5y = 10$$

$$y = 2$$

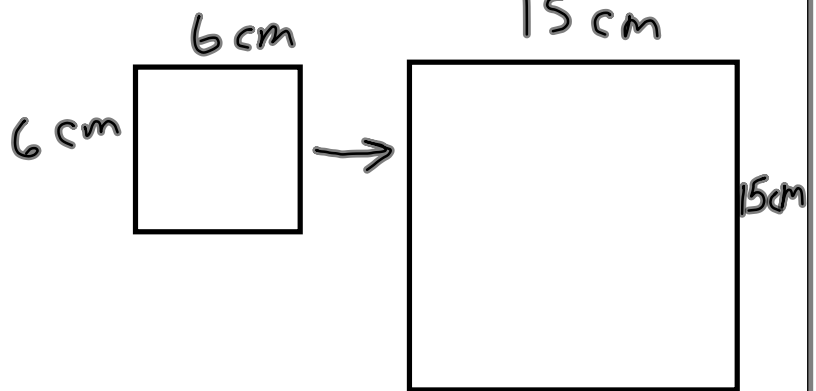
$$\frac{5}{2} = \frac{7.5}{z} \quad 5z = 15$$

$$z = 3$$

Find a Scale Factor

You are using a photo quality printer to enlarge a digital picture. The picture on the computer screen is 6 cm x 6 cm. The printed image is 15 cm x 15 cm. What is the scale factor of the enlargement?

$$\frac{15}{6} = \frac{5}{2} \text{ cm}$$



Finding Coordinates Using a Scale Factor

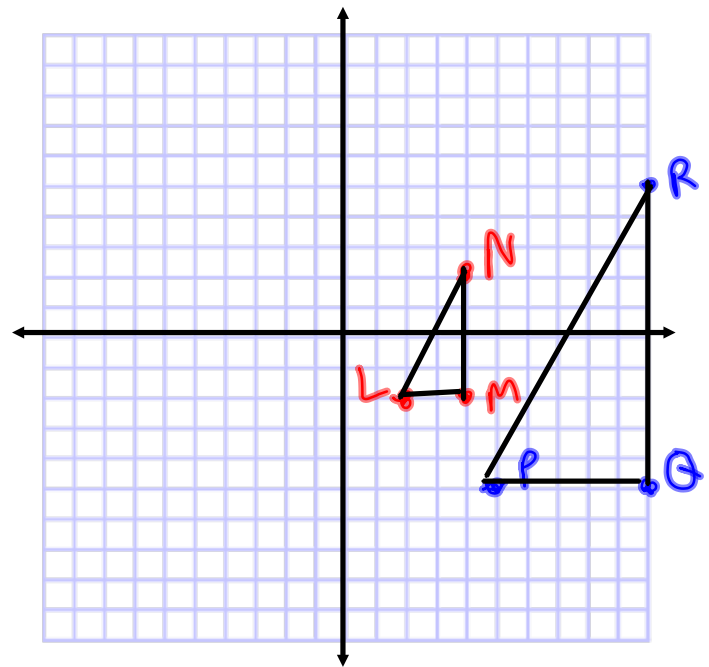
Find the coordinates of L, M, and N so that $\triangle LMN$ is a dilation of $\triangle PQR$ with a scale factor of k . Sketch $\triangle PQR$ and $\triangle LMN$.

A. $P(5,-5)$, $Q(10,-5)$, $R(10,5)$; $k=0.4$

$$L(2, -2)$$

$$M(4, -2)$$

$$N(4, 2)$$



Homework Assignment

Worksheet 6.7B

