Geometry Ch 6-6 Exer., pg 406 #2, 4, 6, 8, 10, 12, 16-20, 22

2. Explain how to find the Scale Factor of a dilation. Now do you know whether the dilation is a reduction or an enlargement?

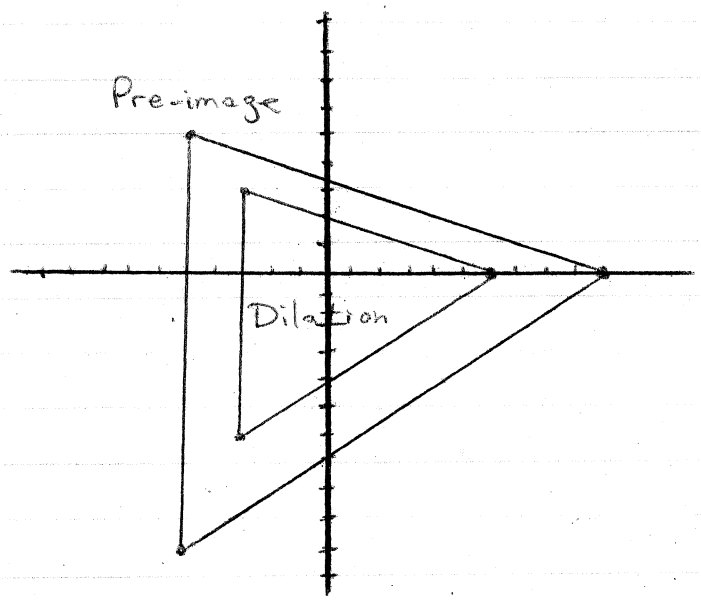
Find the ratio of corresponding side lengths; Image divided by pre-Image. If the ratio is less than one, the dilation is a reduction. If the ratio is greater than one, the dilation is an enlargement.

Draw a dilation of the polygon with the given vertices and scale factor.

4. A(-5,5), B(-5,-10), C(10,0), $K = \frac{3}{5}$

$D\left(-5\left(\frac{3}{5}\right), 5\left(\frac{3}{5}\right)\right)$, $E\left(-5\left(\frac{3}{5}\right), -10\left(\frac{3}{5}\right)\right)$, $F\left(10\left(\frac{3}{5}\right), 0\left(\frac{3}{5}\right)\right)$

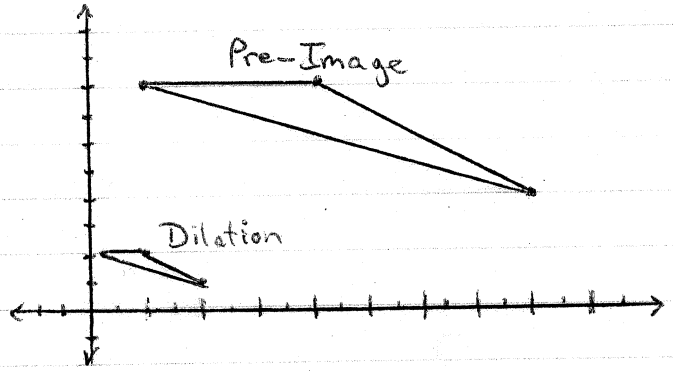
D(-3,3), E(-3,-6), F(6,0)



6. $A(2,8)$, $B(8,8)$, $C(16,4)$, $k = .25$

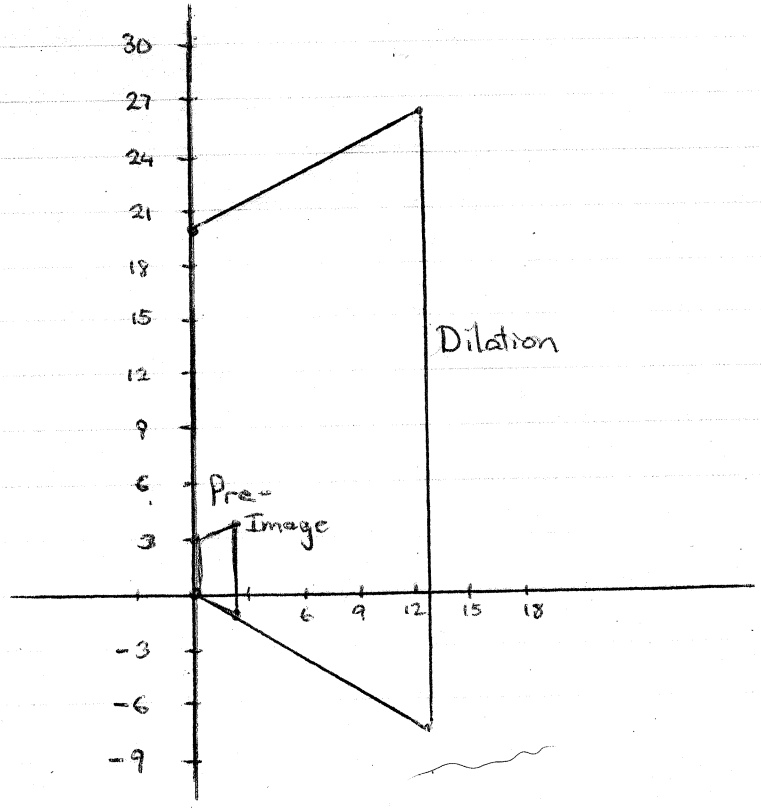
$D(2(.25), 8(.25))$, $E(8(.25), 8(.25))$, $F(16(.25), 4(.25))$

$D(\frac{1}{2}, 2)$, $E(2, 2)$, $F(4, 1)$



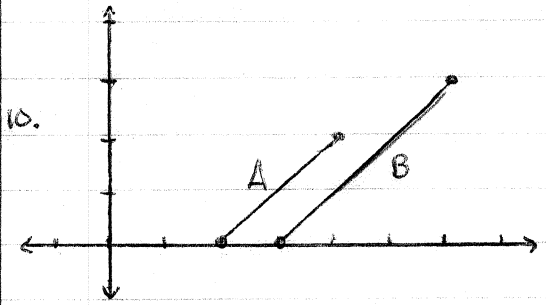
8. $A(0,0)$, $B(0,3)$, $C(2,4)$, $D(2,-1)$ $\quad k = \frac{13}{2}$

$E(0,0)$, $F(0, \frac{39}{2})$, $G(13, 26)$, $H(13, -\frac{13}{2})$



Determine whether the dilation from Figure A to Figure B is a reduction or enlargement. Write the scale factor.

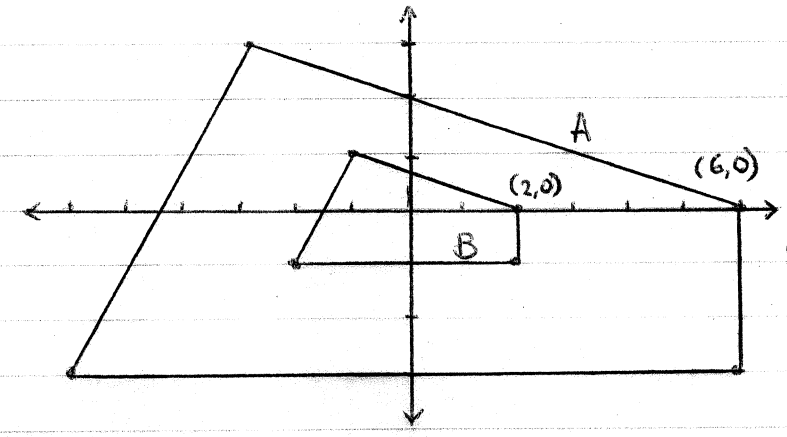
10.



enlargement

$\frac{\text{Image}}{\text{Pre-image}} = \frac{3}{2}$

12.

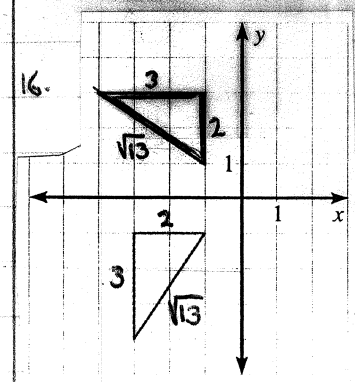


reduction

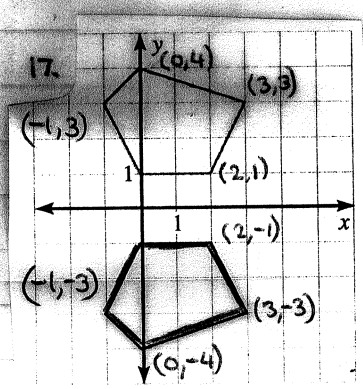
$\frac{\text{Image}}{\text{Pre-image}} = \frac{2}{6} = \frac{1}{3}$

Determine whether the transformation shown is a Translation, Reflection, Rotation, or Dilation.

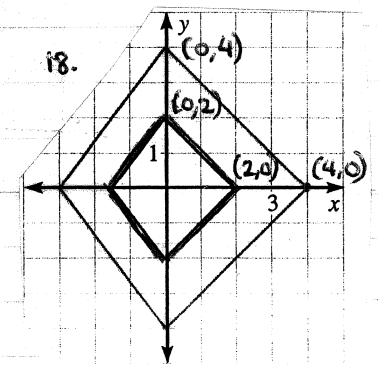
16.



17.



18.



Rotation,

90° counter-clockwise

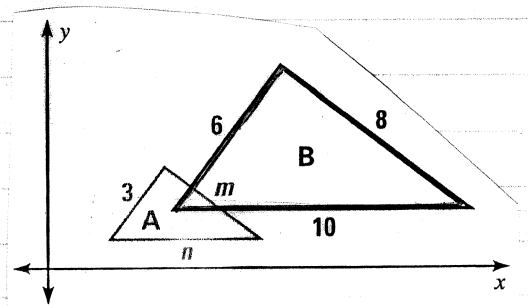
Reflection,

on x-axis

Dilation

Find the scale factor of the dilation of Figure A to Figure B. Give the lengths of the unknown sides.

19.

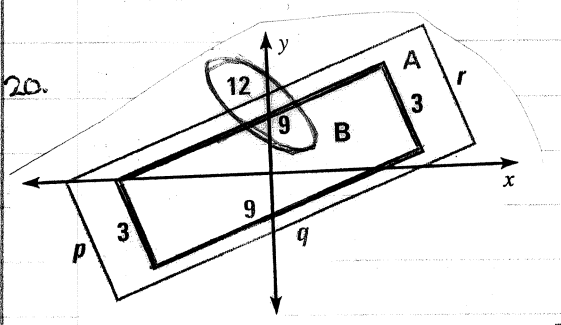


$$\frac{\text{Image}}{\text{Pre-image}} = \frac{6}{3} = 2$$

$$\frac{10}{n} = 2 \qquad \frac{8}{m} = 2$$

$$\boxed{5 = n} \qquad \boxed{4 = m}$$

20.



$$\frac{\text{Image}}{\text{Pre-image}} = \frac{9}{12} = \frac{3}{4}$$

$$\frac{3}{p} = \frac{3}{4} \qquad \frac{9}{q} = \frac{3}{4} \qquad \frac{3}{r} = \frac{3}{4}$$

$$12 = 3p \qquad 36 = 3q \qquad 12 = 3r$$

$$\boxed{4 = p} \qquad \boxed{12 = q} \qquad \boxed{4 = r}$$

22. Suppose you dilate a figure using a scale factor of 2. Then you dilate the image using a scale factor of $\frac{1}{2}$. Describe size/ shape of this new image.

Suppose a side measure is 6.
Dilating 6 by a scale factor of 2 would yield 12.
Dilating 12 by a scale factor of $\frac{1}{2}$ would yield 6.
Back where you started...

The result of these two dilations is the original figure.