GSE Geometry | Unit 3 – Similarity and Right Triangles | Classwork

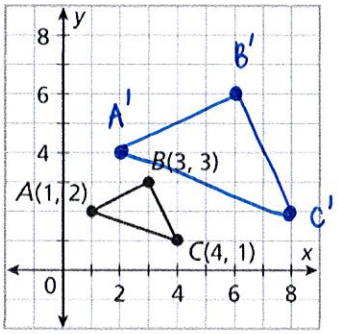
Name_____ Date_____

Day 1 – Dilations and Scale Factor

Apply the dilation *D* to the polygon with the given vertices. Describe the dilation as an enlargement or a reduction.

1. $D: (x, y) \rightarrow (2x, 2y)$

   $A(1, 2)$, $B(3, 3)$, $C(4, 1)$



A' (2,4)

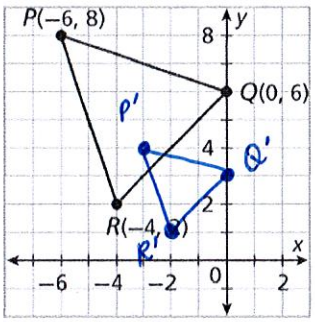
B' (6,6)

C' (8,2)

enlargement

2. $D: (x, y) \rightarrow (\frac{1}{2}x, \frac{1}{2}y)$

   $P(-6, 8)$, $Q(0, 6)$, $R(-4, 2)$



P' (-3,4)

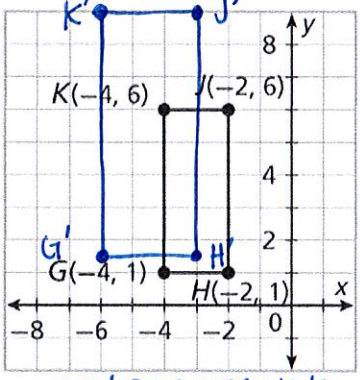
Q' (0,3)

R' (-2,1)

reduction

3. $D: (x, y) \rightarrow (1.5x, 1.5y)$

   $G(-4, 1)$, $H(-2, 1)$, $J(-2, 6)$, $K(-4, 6)$



G' (-6,1.5)

H' (-3,1.5)

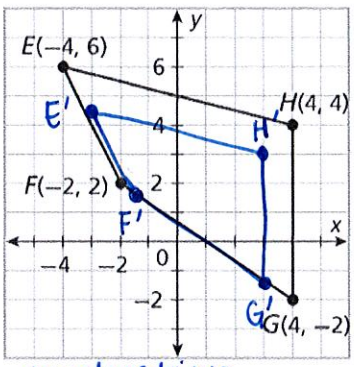
J' (-3,9)

K' (-6,9)

enlargement

4. $D: (x, y) \rightarrow (0.75x, 0.75y)$

   $E(-4, 6)$, $F(-2, 2)$, $G(4, -2)$, $H(4, 4)$



E' (-3,4.5)

F' (-1.5,1.5)

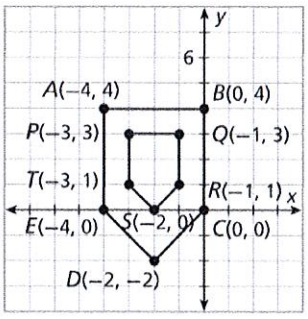
G' (3,-1.5)

H' (3,3)

reduction

Determine whether the polygons with the given vertices are similar. ***Hint:* check the lengths of their sides.**

5. $A(-4, 4)$, $B(0, 4)$, $C(0, 0)$, $D(-2, -2)$, $E(-4, 0)$; $P(-3, 3)$, $Q(-1, 3)$, $R(-1, 1)$, $S(-2, 0)$, $T(-3, 1)$

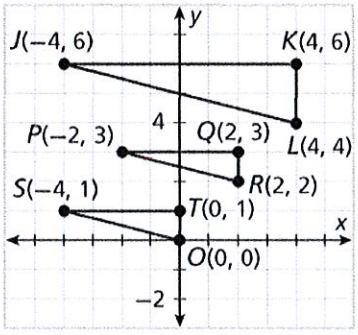


similar

$\frac{4}{2} = \frac{4}{2}$

$2 = 2$ ✓

6. $J(-4, 6)$, $K(4, 6)$, $L(4, 4)$; $P(-2, 3)$, $Q(2, 3)$, $R(2, 2)$; $S(-4, 1)$, $T(0, 1)$, $O(0, 0)$



$\frac{8}{4} = \frac{2}{1}$

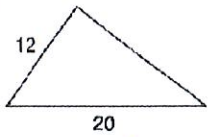
$2 = 2$ ✓

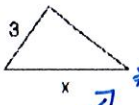
similar

* Remember congruent figures are also similar

Each pair of figures is similar. Find the Missing Side.

1)





* either way works

$\frac{12}{20} \times \frac{3}{x}$

$12x = 60$

$x = 5$

OR $\frac{3}{12} \times \frac{x}{20}$

$60 = 12x$

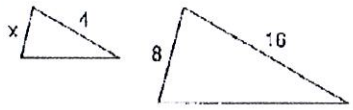
$x = 5$

2)

$\frac{x}{1} = \frac{9}{3}$

$x = 3$

3)

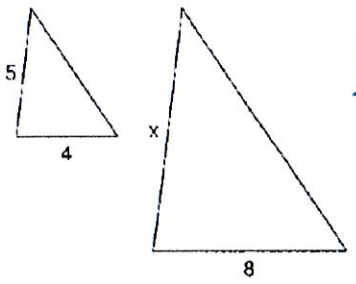


$\frac{x}{4} \times \frac{8}{16}$

$16x = 32$

$x = 2$

4)

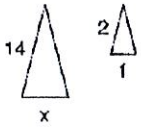


$\frac{5}{4} \times \frac{x}{8}$

$4x = 40$

$x = 10$

5)

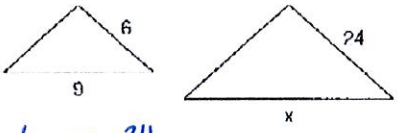


$\frac{14}{x} \times \frac{2}{1}$

$2x = 14$

$x = 7$

6)

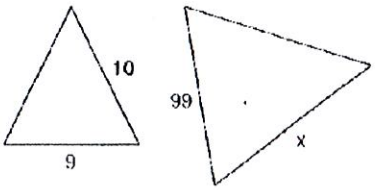


$\frac{6}{9} \times \frac{24}{x}$

$6x = 216$

$x = 36$

7)

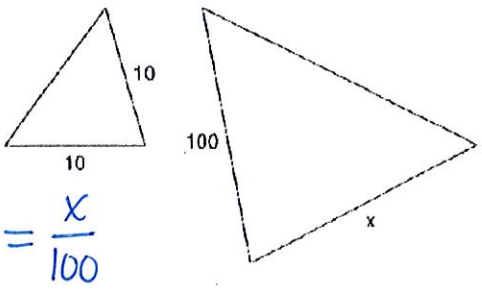


$\frac{10}{9} \times \frac{x}{99}$

$9x = 990$

$x = 110$

8)



$\frac{10}{10} = \frac{x}{100}$

$10x = 1000$

$x = 100$