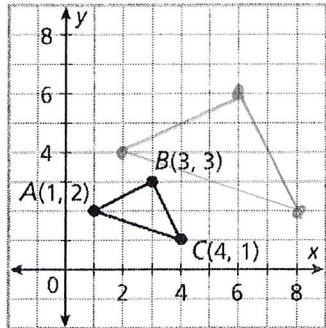# CCGPS Geometry – 3.8 Practice

Similarity and Transformations

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

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

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

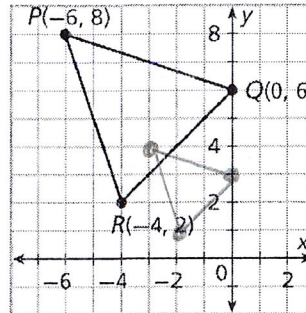

   Scale factor = 2

   A' $(2,4)$

   B' $(6,6)$

   C' $(8,2)$

   Ratio between areas is 4

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

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

   Scale factor = ½

   P' $(-3,4)$
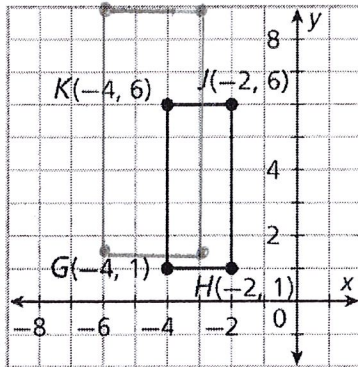
   Q' $(0,3)$

   R' $(-2,1)$

   Ratio b/w areas is ¼

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

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

   Scale factor = 3/2
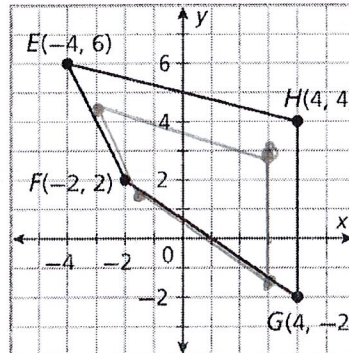

   G' $(-6, 3/2)$

   H' $(-3, 3/2)$

   J' $(-6, 9)$

   K' $(-3, 9)$

   Ratio b/w areas is 9/4

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

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

   Scale factor = 3/4

   E' $(-3, 9/2)$

   F' $(-3/2, 3/2)$

   G' $(3, -3/2)$

   H' $(3, 3)$

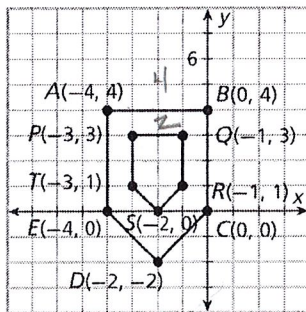   Ratio b/w areas is 9/16

   $6(\frac{3}{4}) = \frac{18}{4} = \frac{9}{2}$

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

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

   $AB = 4$ $PQ = 2$

   $AE = 4$ $PE = 2$

   they are ~

   Scale factor = ½

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