State whether a dilation with the given scale factor is a reduction or an enlargement.
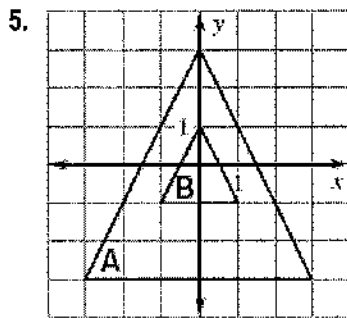
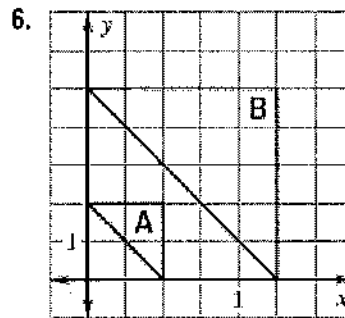**1.** k = 3   **2.** k = $\frac{1}{3}$ **3.** k = $\frac{5}{4}$ **4.** k = 0.93
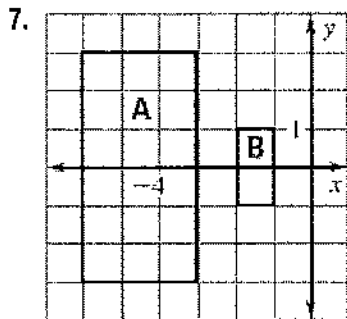
Determine whether the dilation from Figure A to Figure B is a *reduction* or an *enlargement*. Then find its scale factor.
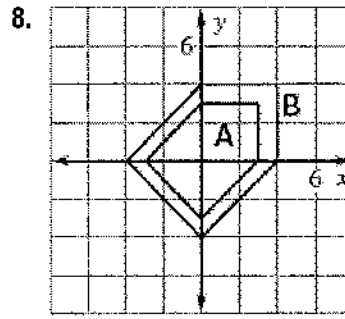
5.

_____ k = _____

6.

_____ k = _____

7.

_____ k = _____

8.

_____ k = _____

Point A is a vertex of a polygon. Point R is the image of A after the dilation. Find the scale factor of the dilation.

9. A (3, 4) and R (9, 12)   **10.** A (9, 12) and R (6, 8)   **11.** A (-2, -3) and R (-10, -15)

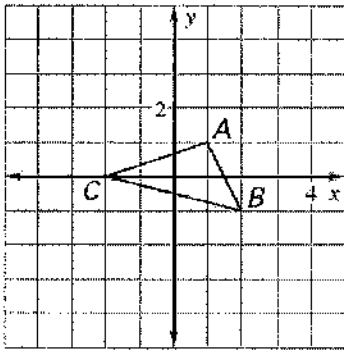**A line segment has the given endpoints. Use the scale factor to write the ordered pairs after the dilation.**

12. A(1,1), B (3, 1), and k = 2   **13.** A(4,4), B(8, 12), and k = ¾   **14.** A(0, 0), B(-3, 2), and k = 5
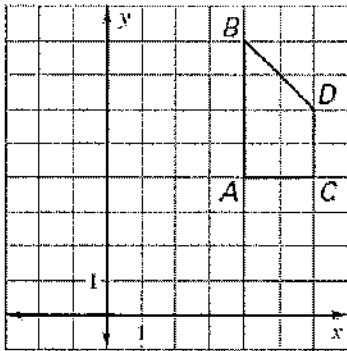
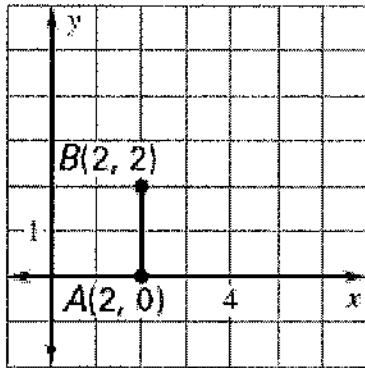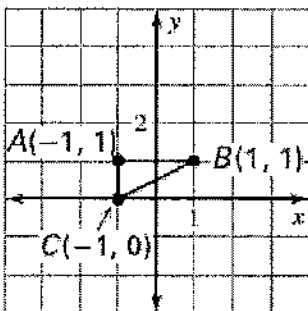**Draw a dilation of the figure using the given scale factor.**

15. k = 2

16. k = ¼

17. k = ½

18. k = 1 ½

19. k = 2

20. k = ½

21. k = 3
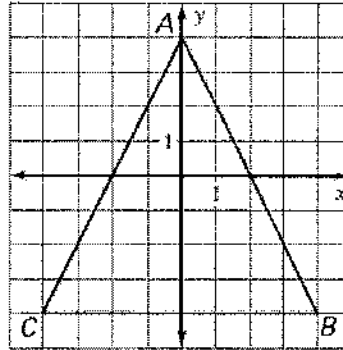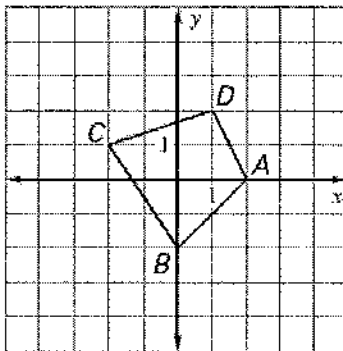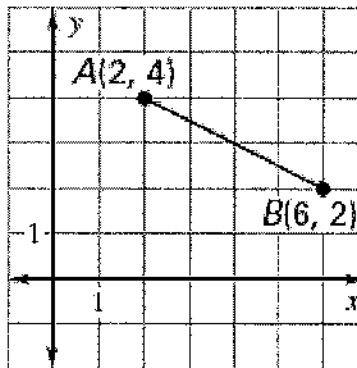
22. k = 1/3
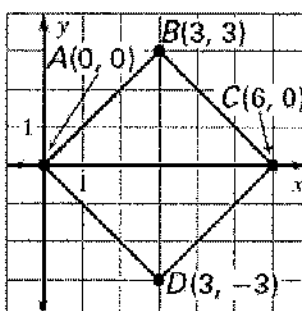
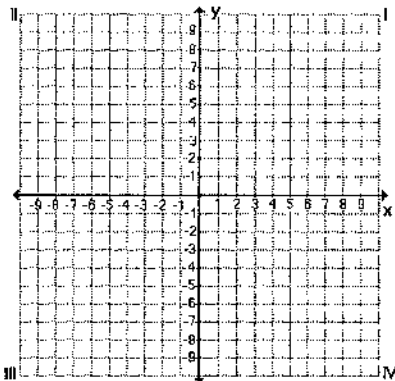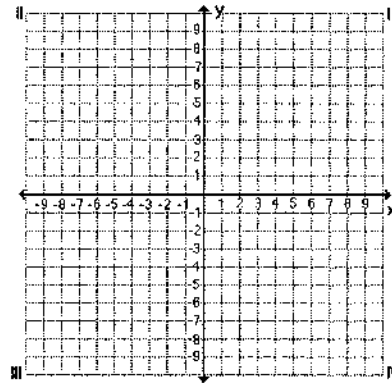**Draw a dilation of the polygon with the given vertices using the given scale factor. Plot the ordered pairs on the coordinate plane AND the dilation.**

23. A(-2, 1), B(-4, 1), C(-2, 4); k = 2

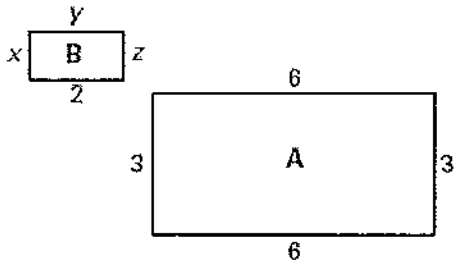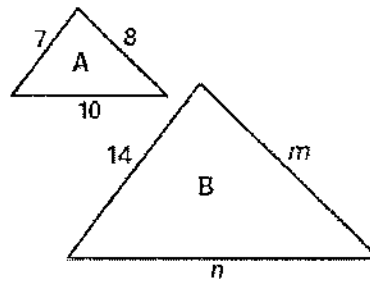**24.** A(-5, 5), B(-5, 10), C(10, 0); k = 3/5

Determine whether the dilation from Figure A to Figure B is a reduction or an enlargement. Then, find the values of the variables.
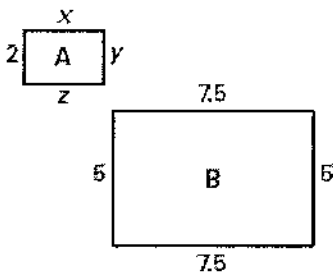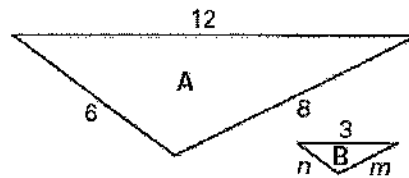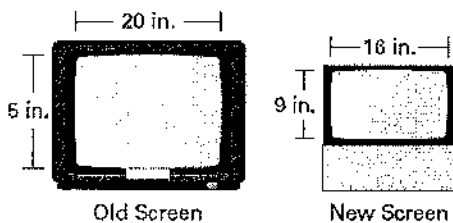
25.

26.

27.

28.

29. The screen on your old television is 20 inches wide and 15 inches high. The screen on your new widescreen television is 16 inches wide and 9 inches high. Is the screen on your new TV a dilation of the screen on your old TV? Explain.
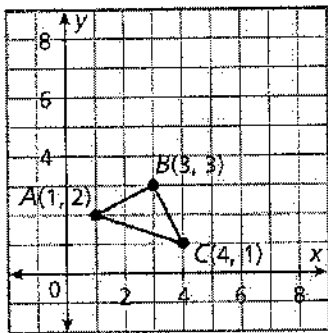

Old Screen   New Screen

Name_____ Date_____ Class _____

CCGPS Geometry – 6.1 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. $D: (x, y) \rightarrow (2x, 2y)$
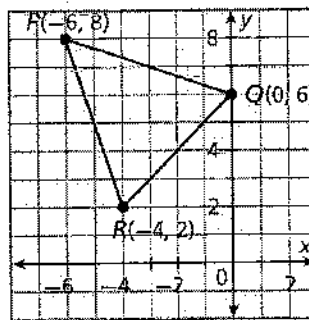
   $A(1, 2), B(3, 3), C(4, 1)$

   A' _____

   B' _____

   C' _____

2. $D: (x, y) \rightarrow (\frac{1}{2}x, \frac{1}{2}y)$
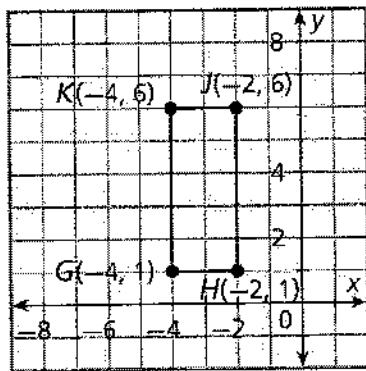
   $P(-6, 8), Q(0, 6), R(-4, 2)$

   P' _____

   Q' _____

   R' _____

3. $D: (x, y) \rightarrow (1.5x, 1.5y)$
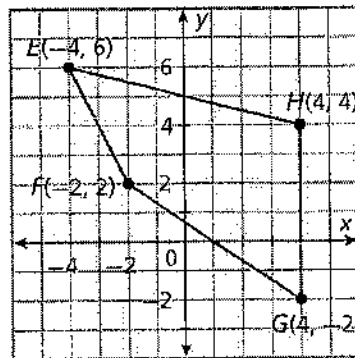
   $G(-4, 1), H(-2, 1), J(-2, 6), K(-4, 6)$

   G' _____

   H' _____

   J' _____

   K' _____

4. $D: (x, y) \rightarrow (0.75x, 0.75y)$
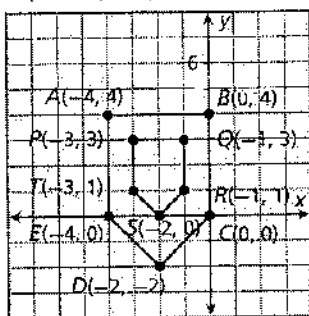
   $E(-4, 6), F(-2, 2), G(4, -2), H (4, 4)$

   E' _____

   F' _____

   G' _____

   H' _____

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

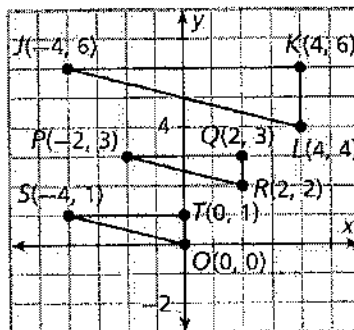5. $A(-4, 4), B(0, 4), C(0, 0), D(-2, -2),$

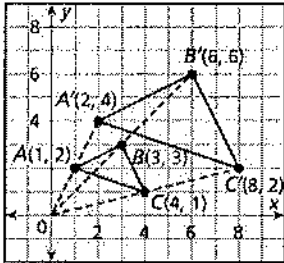 $E(-4, 0); P(-3, 3), Q(-1, 3), R(-1, 1),$

   $S(-2, 0), T(-3, 1)$

6. $J(-4, 6), K(4, 6), L(4, 4); P(-2, 3),$

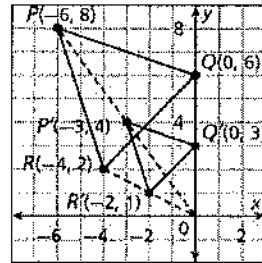 $Q(2, 3), R(2, 2); S(-4, 1), T(0, 1), O(0, 0)$

Standard MCC9-12.G.SRT.1:

A dilation takes a line not passing through the center of the dilation to a parallel line, and leaves a line passing through the center unchanged.
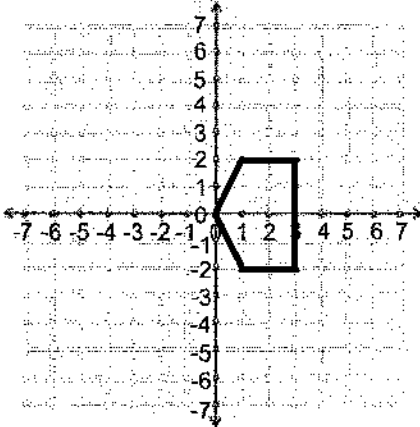
 (from #1 above)

 (from #2 above)

What if the center of the dilation passes through one of the sides of the triangle? Draw a dilation with a factor of 2 to see what happens.

SIMILARITY OF DIFFERENT SHAPES:

Squares? YES or NO   Rectangles? YES or NO

Equilateral Triangle? YES or NO ·   Isosceles Triangle? YES or NO

Circles? YES or NO