

Name: Key

Date: _____

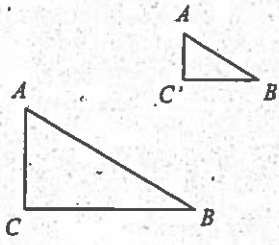
Topic: _____

Class: _____

Main Ideas/Questions

Notes/Examples

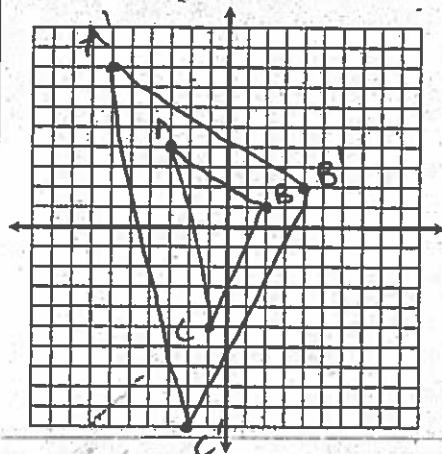
Dilation



- The increase or decrease of a figure.
- The scale factor indicates how much the figure will enlarge or reduce.
- Variable for scale factor: k
 - When $k \geq 1$, the dilation is an increase.
 - When $k < 1$, the dilation is a decrease.
- Dilations result in similar polygons.

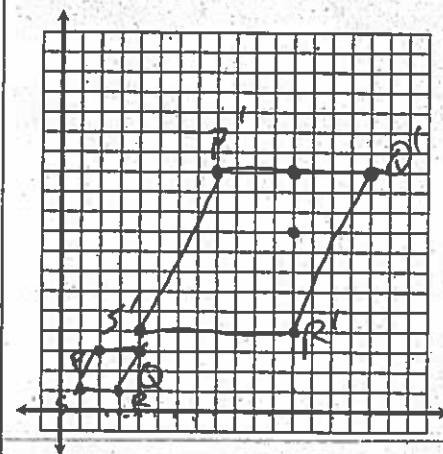
Practical Graph and label each figure and its image under the given dilation. Give the new coordinates.

1. Triangle ABC with vertices $A(-3, 4)$, $B(2, 1)$, and $C(-1, -5)$: $k = 2$



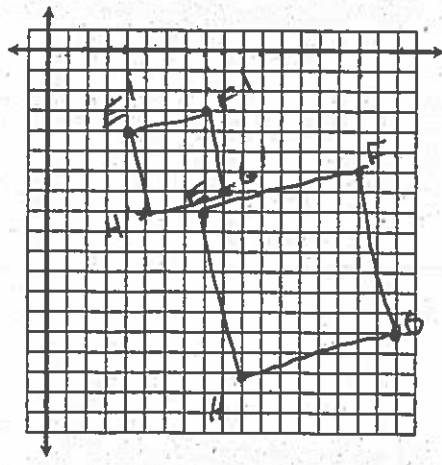
$A'(-6, 8)$
 $B'(4, 2)$
 $C'(-2, -10)$

2. Parallelogram $PQRS$ with vertices $P(2, 3)$, $Q(4, 3)$, $R(3, 1)$, and $S(1, 1)$: $k = 4$



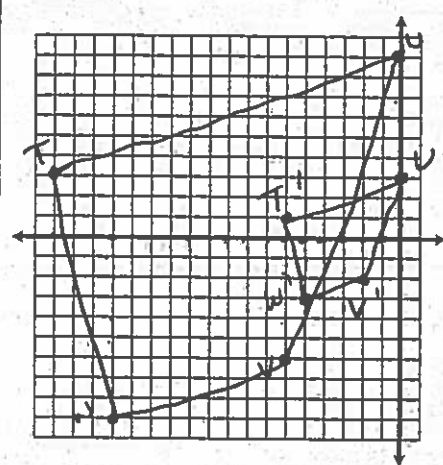
$P'(8, 12)$
 $Q'(16, 12)$
 $R'(12, 4)$
 $S'(4, 4)$

3. Square $EFGH$ with vertices $E(8, -8)$, $F(16, -6)$, $G(18, -14)$, and $H(10, -16)$: $k = 1/2$



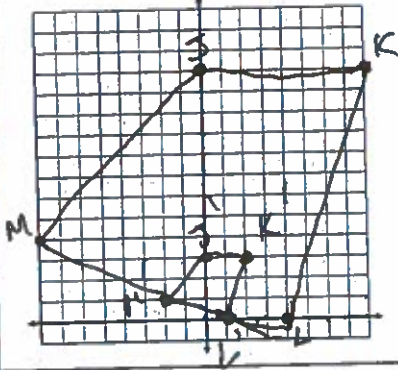
$E'(4, -4)$
 $F'(8, -3)$
 $G'(9, -7)$
 $H'(5, -8)$

4. Trapezoid $TUVW$ with vertices $T(-18, 3)$, $U(0, 9)$, $V(6, -6)$, and $W(-15, -9)$: $k = 1/3$



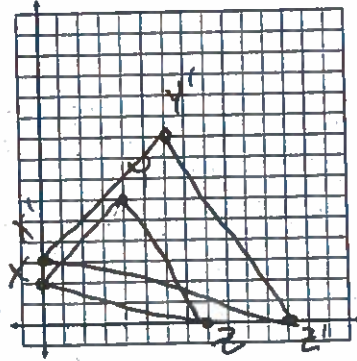
$T'(-6, 1)$
 $U'(0, 3)$
 $V'(-2, -2)$
 $W'(-5, -3)$

5. Quadrilateral JKLM with vertices $J(0, 12)$, $K(8, 12)$, $L(4, 0)$, and $M(-8, 4)$: $k = 1/4$



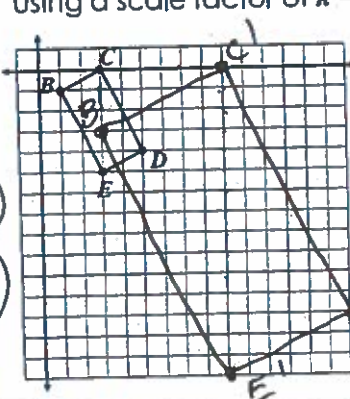
$J'(0, 3)$
 $K'(2, 3)$
 $L'(1, 0)$
 $M'(-2, 1)$

6. Triangle XYZ with vertices $X(0, 2)$, $Y(4, 6)$, and $Z(8, 0)$: $k = 3/2$



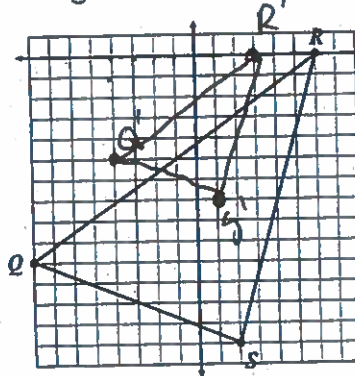
$X'(0, 3)$
 $Y'(6, 9)$
 $Z'(12, 0)$

7. Graph the image of the rectangle below using a scale factor of $k = 3$.



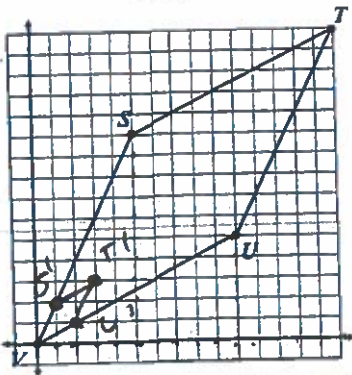
$B(1, -1) \rightarrow (3, -3)$
 $C(3, 0) \rightarrow (9, 0)$
 $B'(3, -3)$
 $C'(9, 0)$
 $D'(9, -15)$
 $E'(3, -15)$

8. Graph the image of the triangle below using a scale factor of $k = 1/2$.



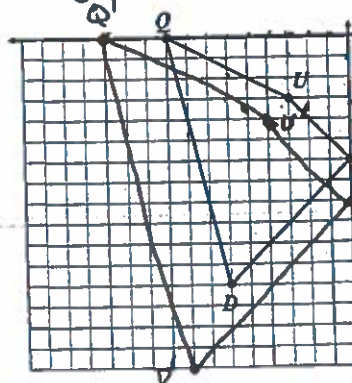
$Q(-8, -10)$
 $P(6, 0)$
 $S(2, 14)$
 $Q'(-4, -5)$
 $R'(3, 0)$
 $S'(1, 7)$

9. Graph the image of the rhombus below using a scale factor of $k = 1/5$.



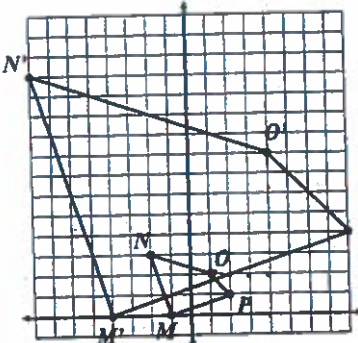
$S(5, 10)$
 $T(15, 15)$
 $U(10, 5)$
 $V(0, 0)$
 $S'(1, 2)$
 $T'(3, 3)$
 $U'(2, 1)$
 $V'(0, 0)$

10. Graph the image of the quadrilateral below using a scale factor of $k = 4/3$.



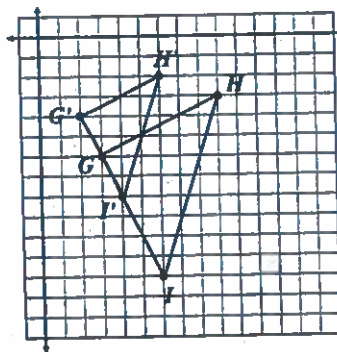
$Q(-9, 0)$
 $U(-3, 3)$
 $A(0, -6)$
 $D(-6, -12)$
 $Q'(-12, 0)$
 $U'(-4, -4)$
 $A'(0, -8)$
 $D'(-8, -16)$

12. Identify the scale factor used to graph the image below.



$O(1, 2) \rightarrow (4, 8)$
 $\frac{\text{New}}{\text{Old}} = \frac{8}{2} = 4$
 $k = 4$

12. Identify the scale factor used to graph the image below.



$G(3, 6) \rightarrow (2, 4)$
 $\frac{\text{New}}{\text{Old}} = \frac{2}{3}$
 $k = \frac{2}{3}$