

Name: Key

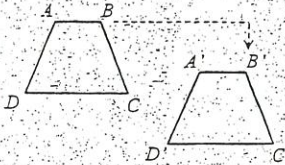
Date:

Topic:

Class:

Main Ideas/Questions

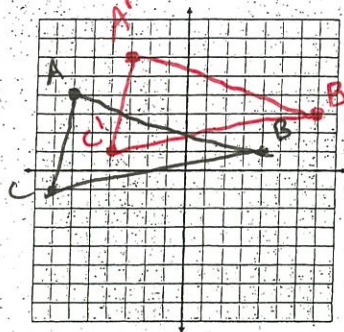
Notes/Examples

TRANSLATION

- A translation is a vertical and/or horizontal slide
- Symbolic Form: $(x, y) \rightarrow (x+h), (y+k)$
 h represents the horizontal shift
 k represents the vertical shift
- Translations result in congruent polygons

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

1. Triangle ABC with vertices $A(-6, 4)$, $B(4, 1)$, and $C(-7, -1)$: $(x, y) \rightarrow (x+3, y+2)$

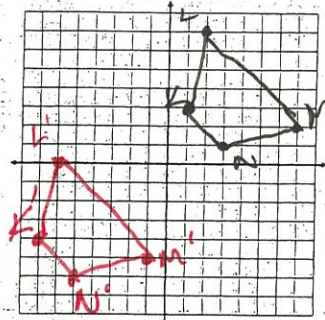


$$A'(-3, 6)$$

$$B'(7, 3)$$

$$C'(-4, 1)$$

2. Trapezoid $KLMN$ with vertices $K(1, 3)$, $L(2, 7)$, $M(7, 2)$, and $N(3, 1)$: $(x, y) \rightarrow (x-8, y-7)$



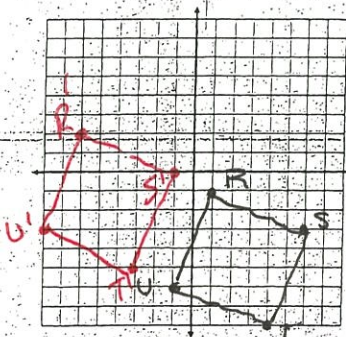
$$K'(-7, -4)$$

$$L'(-6, 0)$$

$$M'(-1, -5)$$

$$N'(-5, -6)$$

3. Square $RSTU$ with vertices $R(1, -1)$, $S(6, -3)$, $T(4, -8)$, and $U(-1, -6)$: $(x, y) \rightarrow (x-7, y+3)$



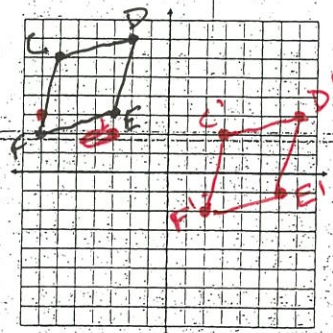
$$R'(-6, 2)$$

$$S'(-1, 0)$$

$$T'(-3, -5)$$

$$U'(-8, -3)$$

4. Rhombus $CDEF$ with vertices $C(-6, 6)$, $D(-2, 7)$, $E(-3, 3)$, and $F(-7, 2)$: $(x, y) \rightarrow (x+9, y-4)$



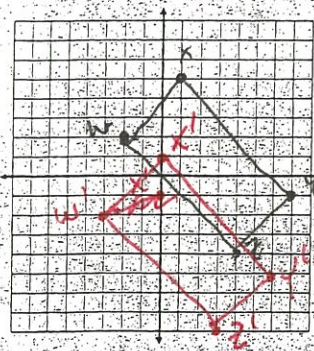
$$C'(3, 2)$$

$$D'(7, 3)$$

$$E'(6, -1)$$

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

5. Rectangle $WXYZ$ with vertices $W(-2, 2)$, $X(1, 5)$, $Y(7, -1)$, and $Z(4, -4)$: $(x, y) \rightarrow (x-1, y-4)$



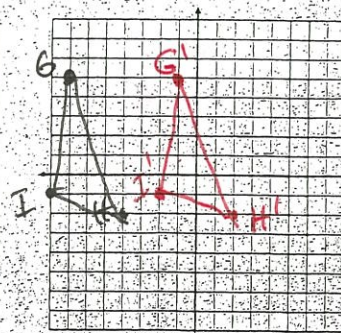
$$W'(-3, -2)$$

$$X'(0, 1)$$

$$Y'(6, -5)$$

$$Z'(3, -8)$$

6. Triangle GHI with vertices $G(-7, 5)$, $H(-4, -2)$, and $I(-8, -1)$: $(x, y) \rightarrow (x+6, y)$

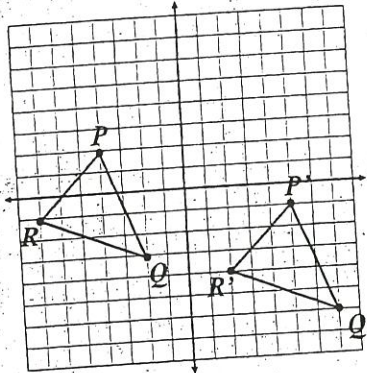


$$G'(-1, 5)$$

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

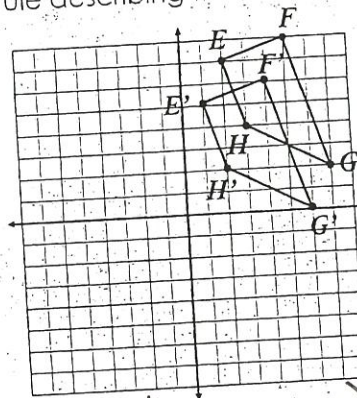
$$I'(-2, -1)$$

Write a rule describing the translation below:



Rule: $(x+7, y-3)$

8. Write a rule describing the translation below:

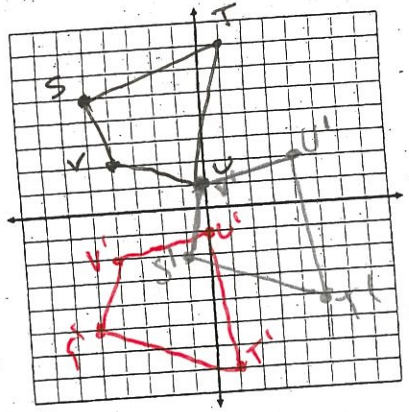


Rule: $(x-1, y-2)$

Directions: Graph and label each figure and its image under the given transformations. Give the new coordinates.

9. Quadrilateral $STUV$ with vertices $S(-5, 5)$, $T(1, 7)$, $U(0, 1)$ and $Z(-4, 2)$:

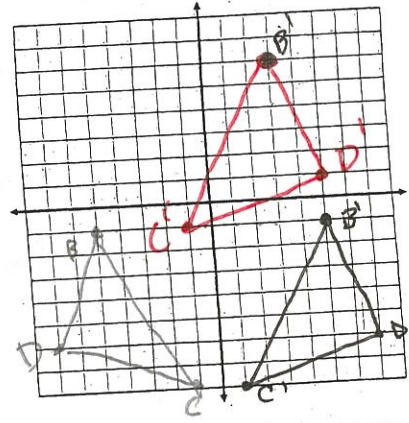
- (a) Reflection: in the x -axis
- (b) Translation: $(x, y) \rightarrow (x + 4, y + 3)$



$S'(-5, -5)$
 $T'(1, -7)$
 $U'(0, -1)$
 $Z'(-4, -2)$

10. Triangle BCD with vertices $B(-5, -1)$, $C(-1, -8)$, and $D(-7, -6)$:

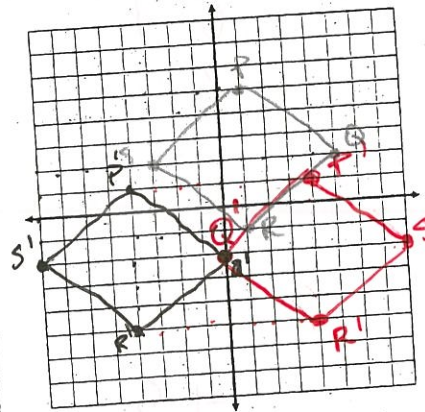
- (a) Reflection: in the y -axis
- (b) Translation: $(x, y) \rightarrow (x - 2, y + 7)$



$B'(-1, -1)$
 $C'(1, -8)$
 $D'(7, -6)$

11. Rhombus $PQRS$ with vertices $P(1, 5)$, $Q(5, 2)$, $R(1, -1)$, and $S(-3, 2)$:

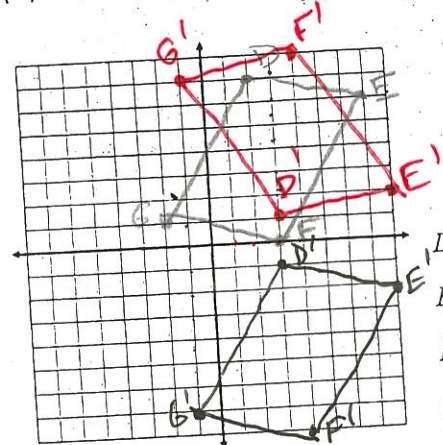
- (a) Translation: $(x, y) \rightarrow (x - 5, y - 4)$
- (b) Reflection: in the y -axis



$P'(-4, 1)$
 $Q'(-1, -2)$
 $R'(-4, -5)$
 $S'(-8, -2)$

12. Parallelogram $DEFG$ with vertices $D(2, 7)$, $E(7, 6)$, $F(3, 0)$ and $G(-2, 1)$:

- (a) Translation: $(x, y) \rightarrow (x + 1, y - 8)$
- (b) Reflection: in the x -axis



$D'(-1, -1)$
 $E'(6, -2)$
 $F'(4, -8)$
 $G'(-1, -7)$