

Transformations - coordinates only

Date _____ Period _____

Find the coordinates of the vertices of each figure after the given transformation.

- 1) translation: 1 unit left and 1 unit down
 $S(0, 3), T(0, 5), U(3, 3)$
- 2) translation: 5 units right and 5 units up
 $D(-2, -3), E(-3, 0), F(0, 0), G(0, -2)$
- 3) translation: 3 units right and 2 units up
 $Z(-3, 0), Y(-1, 3), X(0, 2)$
- 4) translation: 1 unit left and 6 units up
 $H(-1, -2), I(2, -1), J(3, -3)$
- 5) translation: 5 units down
 $H(2, 3), G(4, 5), F(4, 1)$
- 6) reflection across $y = x$
 $E(-4, -5), F(-4, 0), G(-2, -3)$
- 7) reflection across $y = -x$
 $P(-2, -5), Q(2, -2), R(3, -5)$
- 8) reflection across the y-axis
 $Z(-4, 1), Y(-2, 5), X(0, 5), W(0, 4)$
- 9) reflection across $y = x$
 $E(4, -3), D(3, -1), C(4, -1)$
- 10) reflection across $y = -x$
 $J(3, -3), I(3, -1), H(5, -2)$
- 11) rotation 180° about the origin
 $B(0, -5), C(-1, 0), D(2, 0), E(3, -5)$
- 12) rotation 180° about the origin
 $I(0, 0), H(0, 2), G(3, 3), F(5, -1)$
- 13) rotation 180° about the origin
 $H(-4, -3), G(-5, -1), F(-3, -2)$
- 14) rotation 180° about the origin
 $D(-2, 0), C(-3, 4), B(-1, 3)$
- 15) rotation 180° about the origin
 $A(-4, 2), B(-1, 5), C(0, 2)$
- 16) dilation of 0.5
 $V(2, 1), W(3, 4), X(4, 4), Y(5, -1)$
- 17) dilation of 0.25
 $T(3, -5), U(3, -3), V(5, -3)$
- 18) dilation of 2
 $I(-1, -1), J(1, 1), K(2, -1)$
- 19) dilation of 2
 $U(-1, -1), T(-1, 2), S(1, 1)$
- 20) dilation of $\frac{1}{2}$
 $F(-4, 3), G(0, 5), H(-1, 3)$

Write a rule to describe each transformation.

$$\begin{array}{l} 21) K(-3, -1), J(-1, 3), I(2, 2), H(-1, -2) \\ \quad \text{to} \\ K'(3, 1), J'(1, -3), I'(-2, -2), H'(1, 2) \end{array}$$

$$\begin{array}{l} 22) V(-2, -4), W(-4, 1), X(-1, 2), Y(1, -1) \\ \quad \text{to} \\ W'(4, 1), X'(1, 2), Y'(-1, -1), V'(2, -4) \end{array}$$

$$\begin{array}{l} 23) J(3, 1), I(3, 4), H(4, 3), G(5, -2) \\ \quad \text{to} \\ J'(1, -3), I'(4, -3), H'(3, -4), G'(-2, -5) \end{array}$$

$$\begin{array}{l} 24) P(-2, 1), Q(1, 2), R(2, -1) \\ \quad \text{to} \\ P'(-4, 2), Q'(2, 4), R'(4, -2) \end{array}$$

$$\begin{array}{l} 25) C(-5, -4), D(-4, -1), E(-1, -5) \\ \quad \text{to} \\ C'(0, 1), D'(1, 4), E'(4, 0) \end{array}$$

$$\begin{array}{l} 26) H(-1, -3), I(-3, 0), J(0, 2), K(0, -2) \\ \quad \text{to} \\ H'(4, -4), I'(2, -1), J'(5, 1), K'(5, -3) \end{array}$$

$$\begin{array}{l} 27) W(-3, 0), X(-2, 3), Y(1, 2), Z(2, -1) \\ \quad \text{to} \\ W'(-5, 0), X'(-4, 3), Y'(-1, 2), Z'(0, -1) \end{array}$$

$$\begin{array}{l} 28) Y(-5, 3), X(-5, 5), W(-4, 5) \\ \quad \text{to} \\ Y'(-3, -5), X'(-5, -5), W'(-5, -4) \end{array}$$

$$\begin{array}{l} 29) I(2, 2), J(5, 3), K(5, -1) \\ \quad \text{to} \\ I'(2, 3), J'(5, 4), K'(5, 0) \end{array}$$

$$\begin{array}{l} 30) P(-2, -5), Q(-4, -2), R(-3, 0), S(-2, 0) \\ \quad \text{to} \\ Q'(-2, -4), R'(0, -3), S'(0, -2), P'(-5, -2) \end{array}$$