

Name: \_\_\_\_\_ Period: \_\_\_\_\_

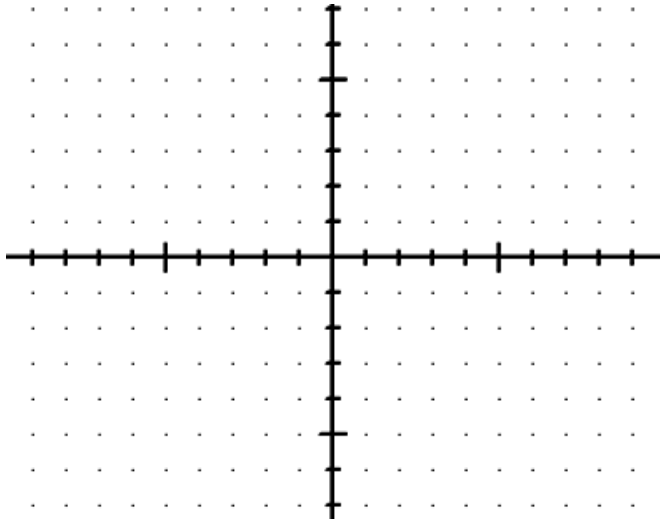
Coordinates, Transformations, and Congruency

Step 1: Graph the **same, irregular** Quadrilateral (with different lengths) in **each** of the graphs:

Step 2: List **All** of the original coordinates of the Preimage here: **Label the points ABCD**

Step 3: Use the transformation rule in each problem on the Preimage and identify the coordinates of the image  $A'B'C'D'$  and color code your shapes.

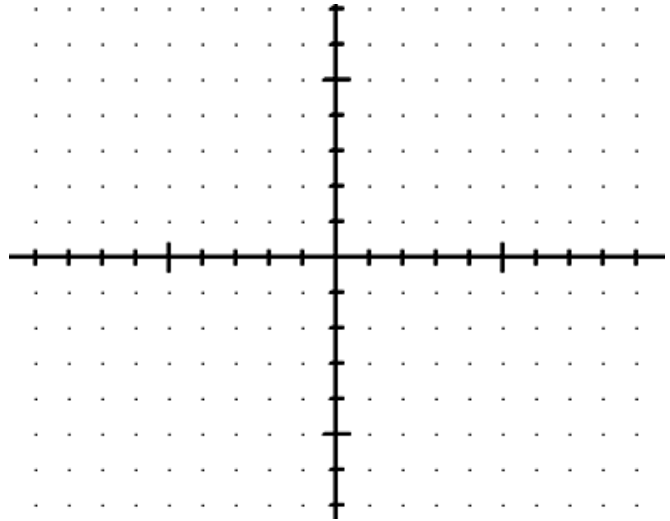
1)  $(x + 4, y - 3)$



Label the image coordinate Points:

Describe the transformation:

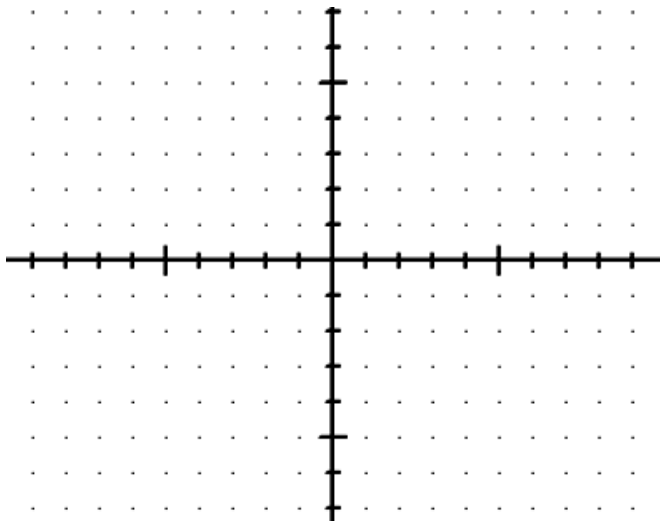
2)  $(-x, y)$



Label the image coordinate Points:

Describe the transformation:

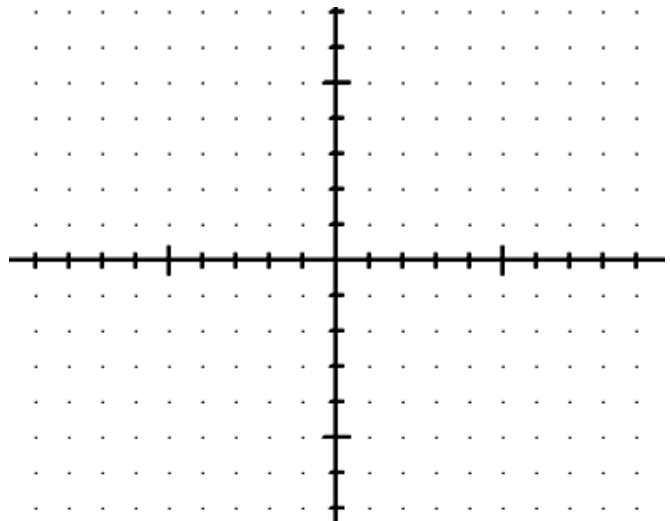
3)  $(x, -y)$



Label the image coordinate Points:

Describe the transformation:

4)  $(y, x)$



Label the image coordinate Points:

Describe the transformation:

Determine the coordinates of each reflected image without graphing.

5) The vertices of triangle  $ABC$  are  $A(5, 3)$ ,  $B(2, 8)$ , and  $C(-4, 5)$ . Reflect the triangle over the  $x$ -axis to form triangle  $A'B'C'$ .

6) The vertices of trapezoid  $MNPQ$  are  $M(-6, -5)$ ,  $N(0, -5)$ ,  $P(-1, 2)$ , and  $Q(-4, 2)$ . Reflect the trapezoid over the  $y$ -axis to form trapezoid  $M'N'P'Q'$ .

7) The vertices of triangle  $RST$  are  $R(0, 3)$ ,  $S(2, 7)$ , and  $T(3, -1)$ . Reflect the triangle over the  $x$ -axis to form triangle  $R'S'T'$ .

Determine the coordinates of each rotated image without graphing.

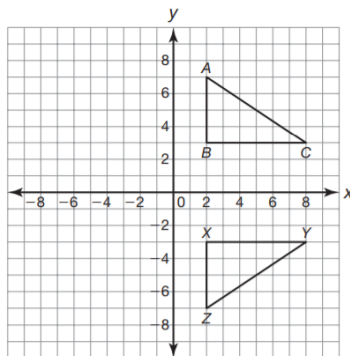
8) The vertices of triangle  $ABC$  are  $A(5, 3)$ ,  $B(2, 8)$ , and  $C(-4, 5)$ . Rotate the triangle about the origin  $90^\circ$  counterclockwise to form triangle  $A'B'C'$ .

9) The vertices of trapezoid  $MNPQ$  are  $M(-6, -5)$ ,  $N(0, -5)$ ,  $P(-1, 2)$ , and  $Q(-4, 2)$ . Rotate the trapezoid about the origin  $180^\circ$  counterclockwise to form trapezoid  $M'N'P'Q'$ .

10) The vertices of triangle  $RST$  are  $R(0, 3)$ ,  $S(2, 7)$ , and  $T(3, -1)$ . Rotate the triangle about the origin  $90^\circ$  counterclockwise to form triangle  $R'S'T'$ .

Identify the transformation used to create  $\triangle XYZ$  on each coordinate plane. Identify the congruent angles and the congruent sides. Then, write a triangle congruence statement.

11)



12)

