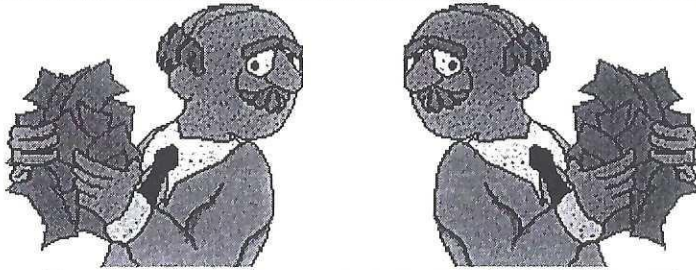


Reflections

A **reflection** can be seen in water, in a mirror, in glass, or in a shiny surface. An object and its reflection have the **same shape and size**, but the **figures face in opposite directions**. In a mirror, for example, right and left are switched.

Do the diagrams below illustrate line reflections?

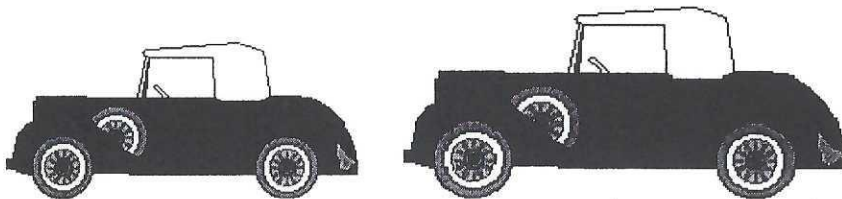
1.



Is this a reflection?

- yes
 no

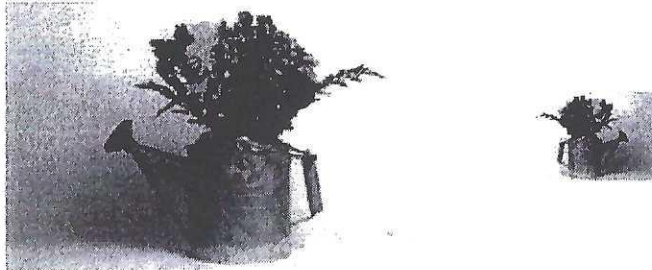
2.



Is this a reflection?

- yes
 no

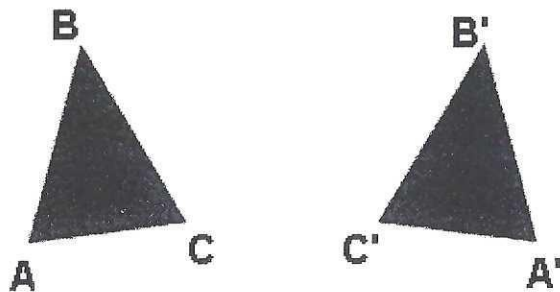
3.



Is this a reflection?

- yes
 no

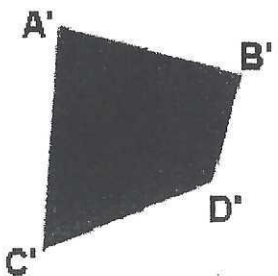
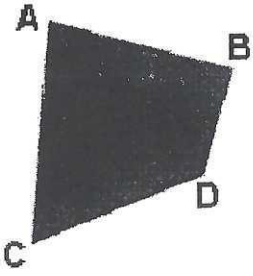
4.



Is this a reflection?

- yes
 no

5.

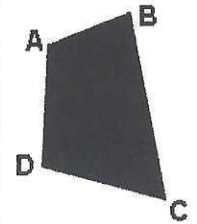
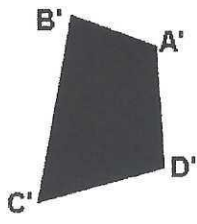


Is this a reflection?

yes

no

6.



Is this a reflection?

yes

no

7.



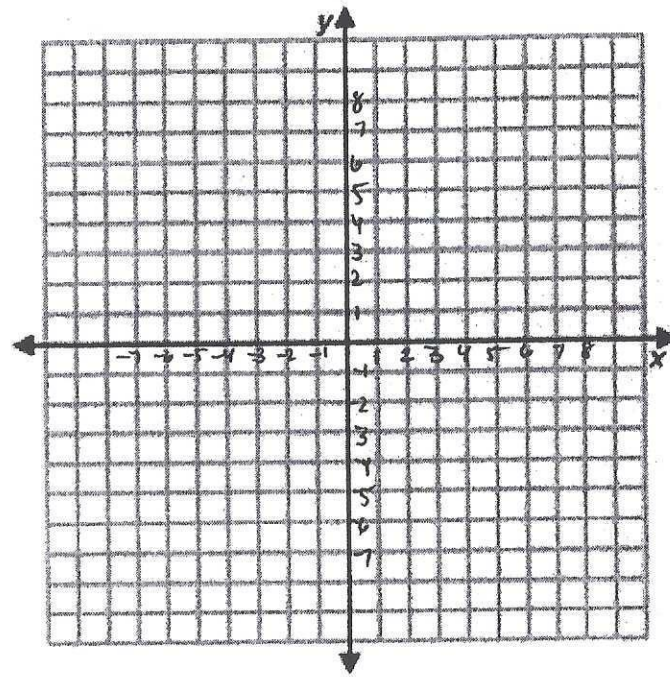
Is this a reflection?

yes

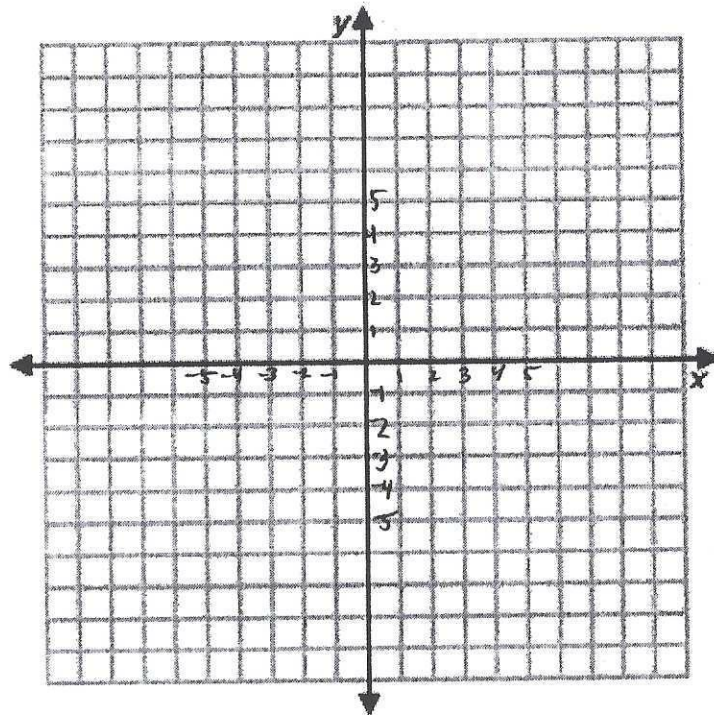
no

A. Reflect over the x-axis.

1. a) Graph triangle ABC.
 A(-2, 1) B(0,4) C(-5, 4)
- b) Reflect triangle ABC over the x-axis.
- c) Write the coordinates of the reflection of triangle ABC.
- A' _____ B' _____
 C' _____
- d) How did the coordinates change?



2. a) Graph rectangle MATH.
 M(2, -5) A(2,-1)
 T(6, -1) H(6, -5)
- b) Reflect rectangle MATH over the x-axis.
- c) Write the coordinates of the reflection of rectangle MATH.
- M' _____ A' _____
 T' _____ H' _____
- d) How did the coordinates change?



When a point is reflected over the x-axis, negate the ____ value.

$r_{x\text{-axis}} (x,y) \rightarrow (x,-y)$

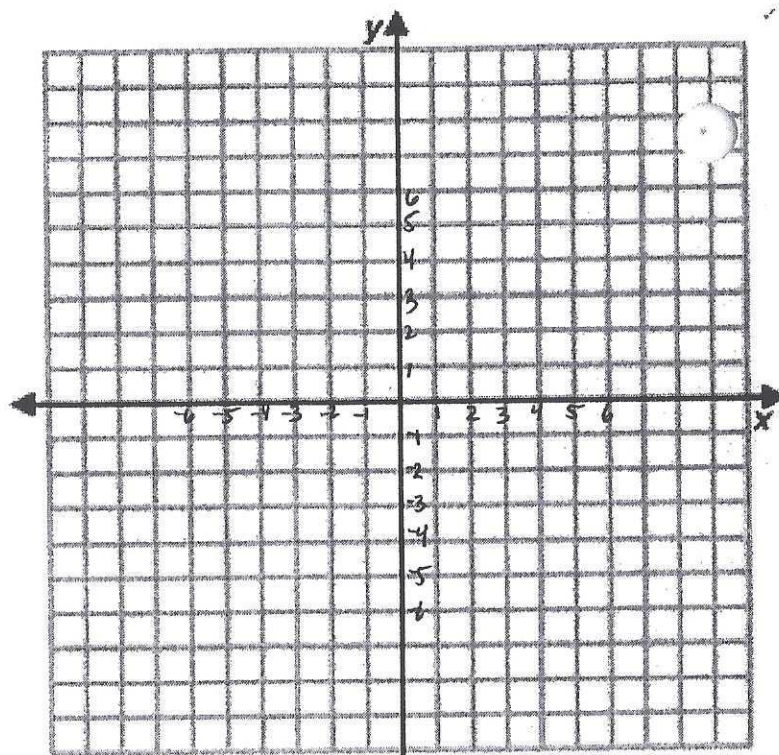
3. Write the reflection of each point in the x-axis.
- a) (-2, 6) b) (9, 10) c) (-3, -4)

B. Reflect over the y-axis.

4. a) Graph triangle BAT.
B(3, 4) A(6, 4) T(4, 6)
- b) Reflect triangle BAT over the y-axis.
- c) Write the coordinates of the reflection of triangle BAT.

B' _____ A' _____
T' _____

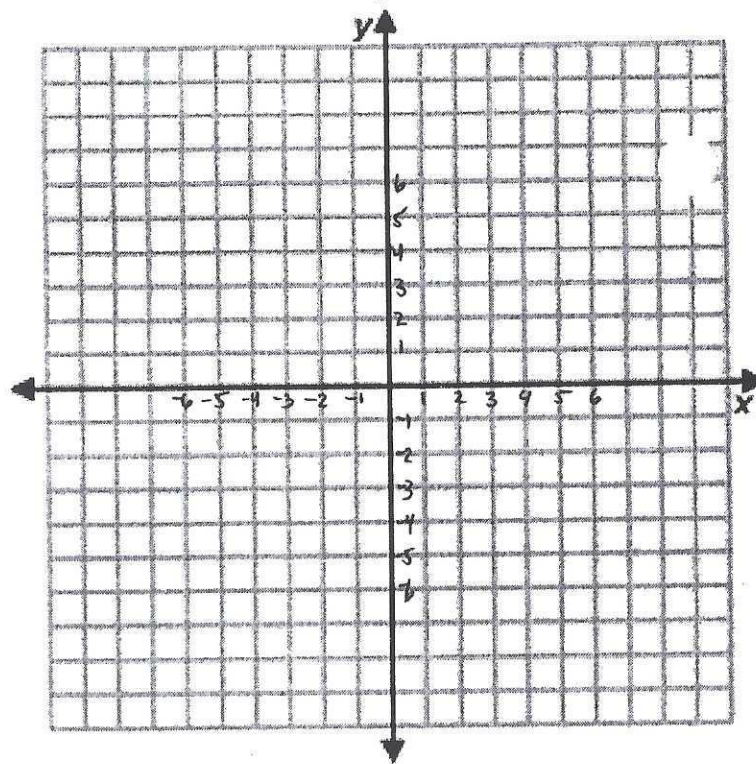
d) How did the coordinates change?



5. a) Graph rectangle TANK.
T(-3, 4) A(-1, 4)
N(-1, -6) K(-3, -6)
- b) Reflect rectangle TANK over the y-axis.
- c) Write the coordinates of the reflection of rectangle TANK.

T' _____ A' _____
N' _____ K' _____

d) How did the coordinates change?



When a point is reflected over the y-axis, negate the ____ value.

$r_{y\text{-axis}} (x,y) \rightarrow (-x,y)$

6. Write the reflection of each point in the y-axis.
- a) (-2, 6) b) (9, 10) c) (-3, -4)
- _____

C. Reflect over the origin.

When a point is reflected over the origin, negate both x and y.

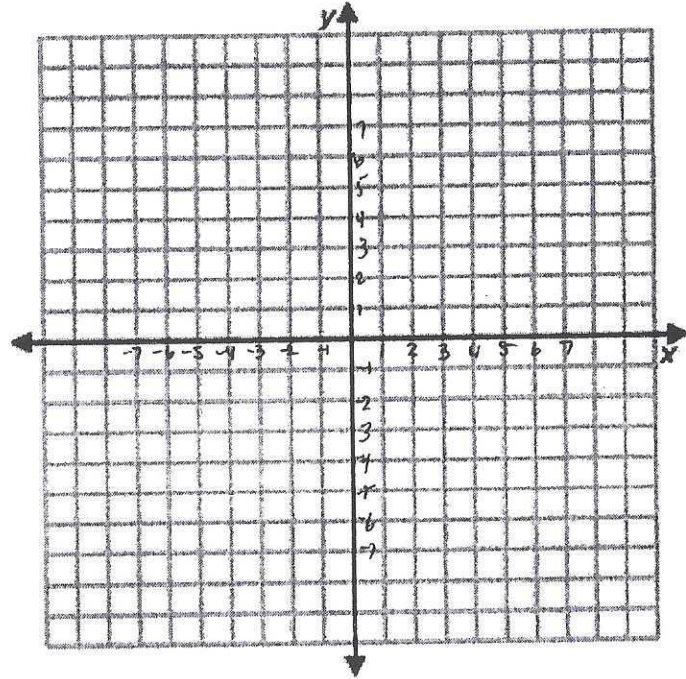
$$r_{\text{origin}} (x,y) \rightarrow (-x,-y)$$

7. a) Graph triangle PAT.
 P(-3, -4) A(-7, -4) T(-4, -6)

b) Reflect triangle PAT over the origin.

c) Write the coordinates of the reflection of triangle PAT.

P' _____ A' _____ T' _____

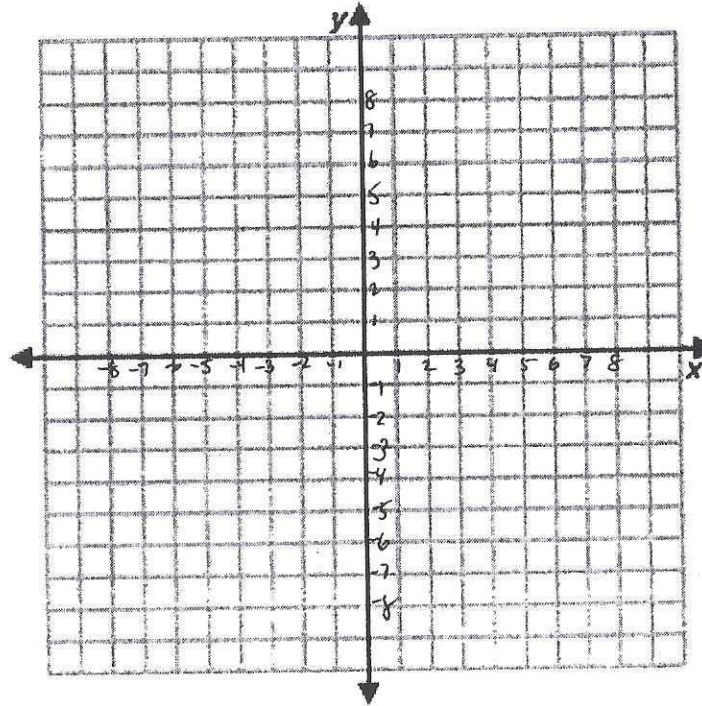


8. a) Graph rectangle MINK.
 M(2, 4) I(6, 4)
 N(6, 8) K(2, 8)

b) Reflect rectangle MINK over the origin.

c) Write the coordinates of the reflection of rectangle MINK.

M' _____ I' _____
 N' _____ K' _____



9. Write the reflection of each point in the origin.

- a) (-10, 6) b) (8, 1) c) (-3, -4)

Name: _____
Mrs. Roubos

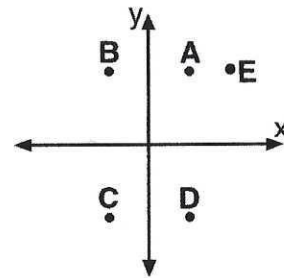
Date: _____
8R Period _____

Mixed Examples

1) What are the coordinates of A' , the image of $A(2,3)$ after a reflection in the x -axis?

2) What are the coordinates of A' , the image of point $A(-5,1)$ after a reflection in the y -axis?

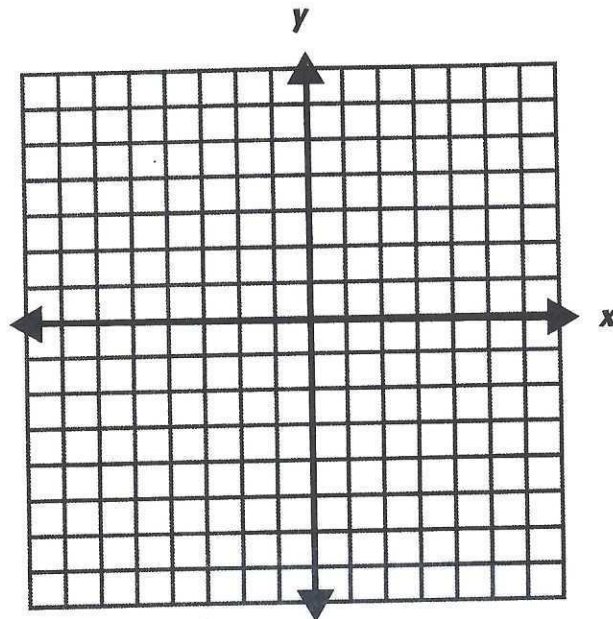
3) In the accompanying diagram, what point may be the image of point A after a line reflection in the x -axis?



- A) E
- B) D

- C) C
- D) B

4) Triangle DGT lies in a coordinate plane with vertices $D(3, 7)$, $G(4, 4)$, and $T(1, 0)$. Plot the vertices of the triangle obtained by reflecting DGT across the x -axis.



$D'(\underline{\hspace{1cm}})$ $G'(\underline{\hspace{1cm}})$ $T'(\underline{\hspace{1cm}})$