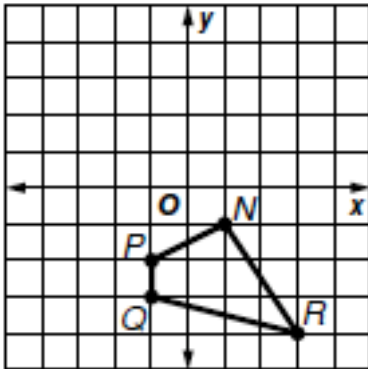# 8-3 Reflections on the Coordinate Plane
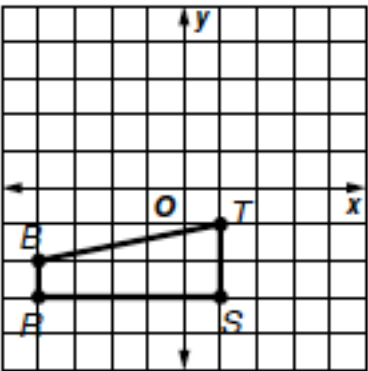
Reflection (x-axis) – a) Find the coordinates of the vertices of each pre-image after a reflection over the given axis. Then graph the reflected image. **b)** Answer any questions that follow.

LP#1

How does the size and shape of the image compare to its pre-image?

LP#2

In the pre-image, line *BR* is parallel to line *TS*. In the image of shape *B'T'S'R'*, is the line *B'R'* parallel to *T'S'*?

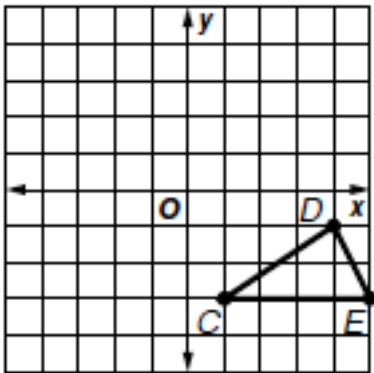**Create a rule for reflections through the *x* –axis.**

A method for expressing a rule to represent a translation is as follows:
$(x,y) \rightarrow (x + a, y + b)$

Examine the points to the pre-images and the resulting points of the images after the reflections through the *x*-axis in LP#1 and LP#2 to create a rule to represent a reflection through the x – axis.
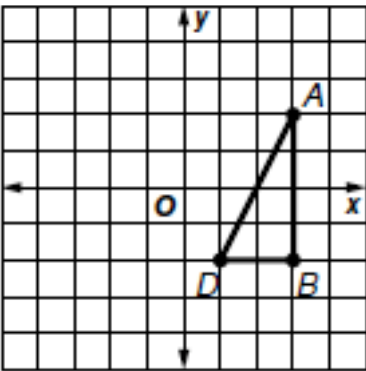
Reflection (y-axis) – a) Find the coordinates of the vertices of each figure after a reflection over the given axis. Then graph the reflection image. **b)** Answer any questions that follow.

LP#3

How does the size and shape of the image compare to its pre-image?

LP#4

In the pre-image, line *DB* is perpendicular to line *BA*. In the image of shape *D'B'A'*, is the line *D'B'* parallel to *B'A'*?

Create a rule for reflections through the *y* –axis.

A method for expressing a rule to represent a translation is as follows:
$(x,y) \rightarrow (x + a, y + b)$

A method for expressing a rule to represent a reflection through the *x*-axis is as follows:
$(x,y) \rightarrow (x,-y)$

Examine the points to the pre-images and the resulting points of the images after the reflections through the *y*-axis in LP#3 and LP#4 to create a rule to represent a reflection through the y – axis.

Reflections (A)
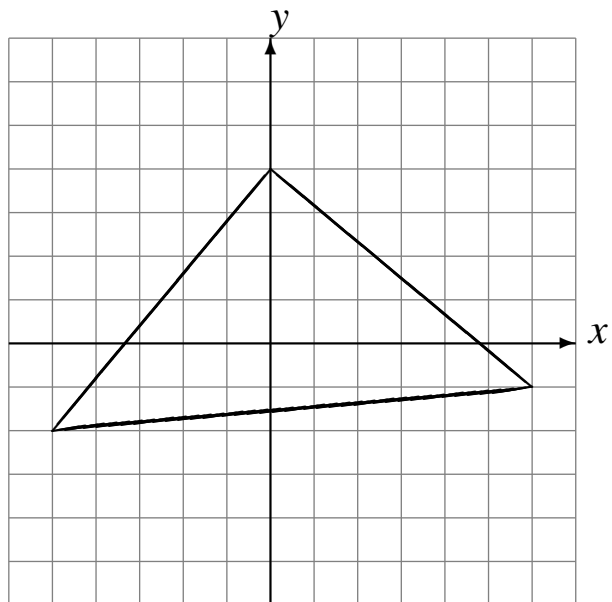
Draw each reflected image.
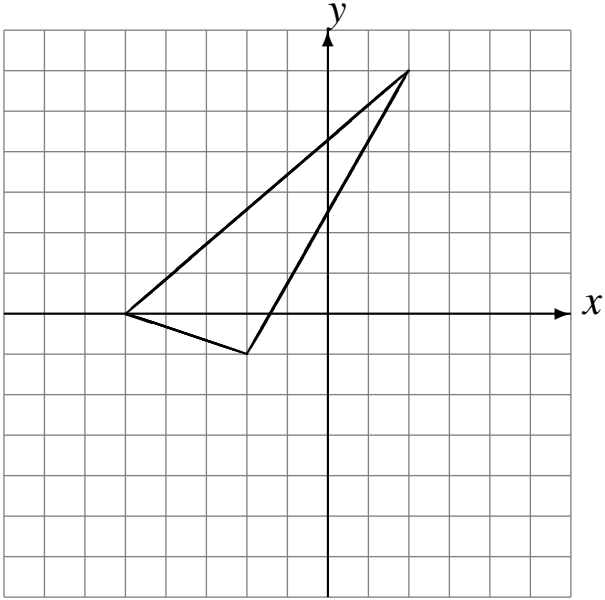
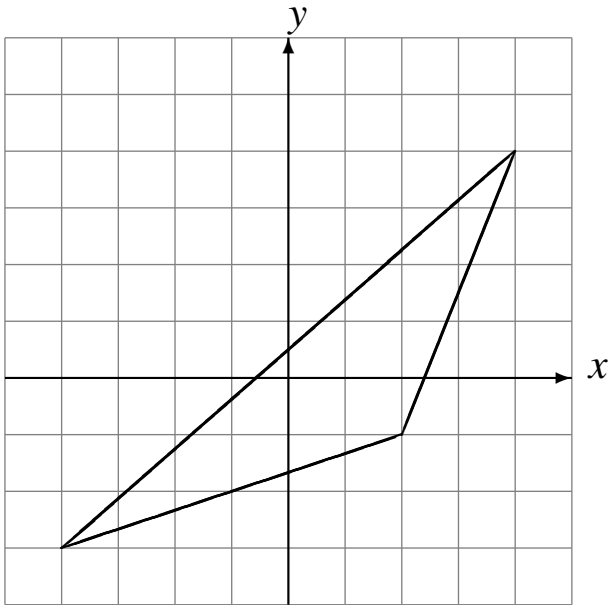Reflect over y = 0.
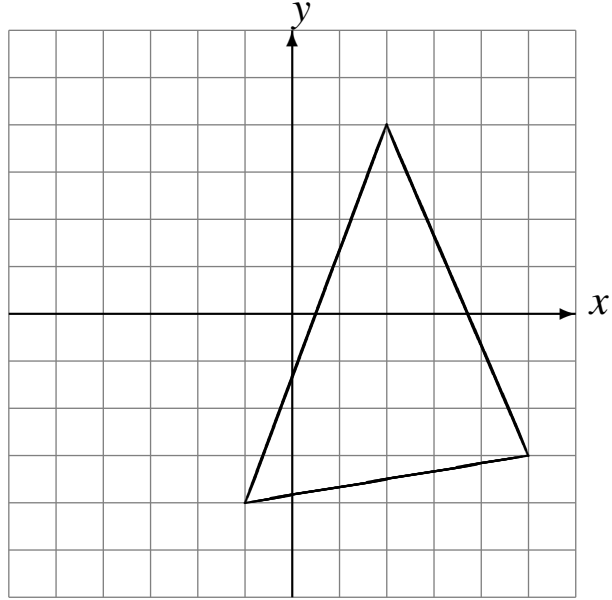
Reflect over x = 0.
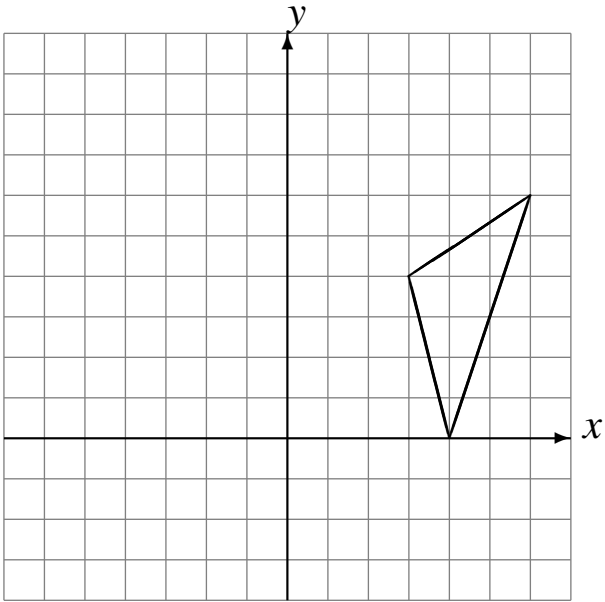
Reflect over x = 0.

Reflect over y = 0.
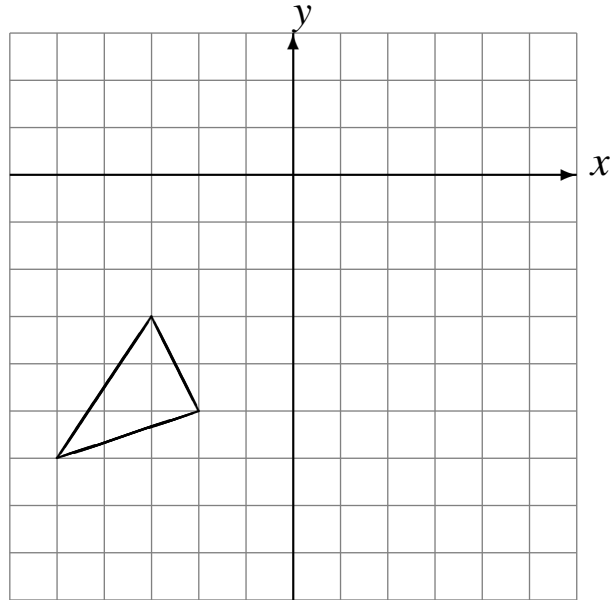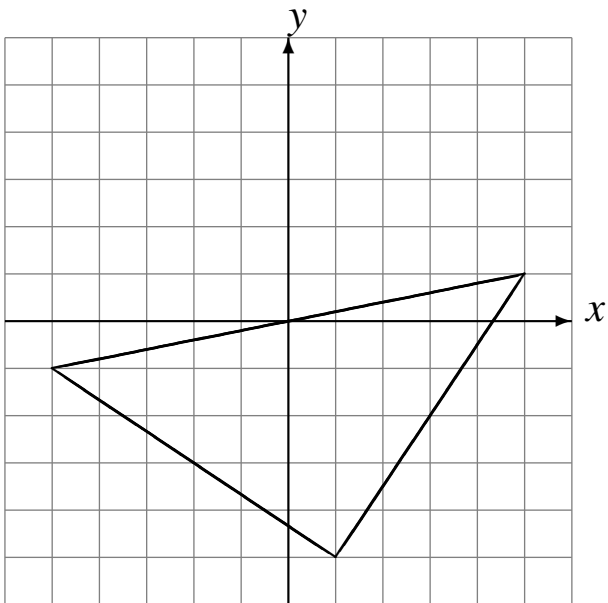
Reflections (B)
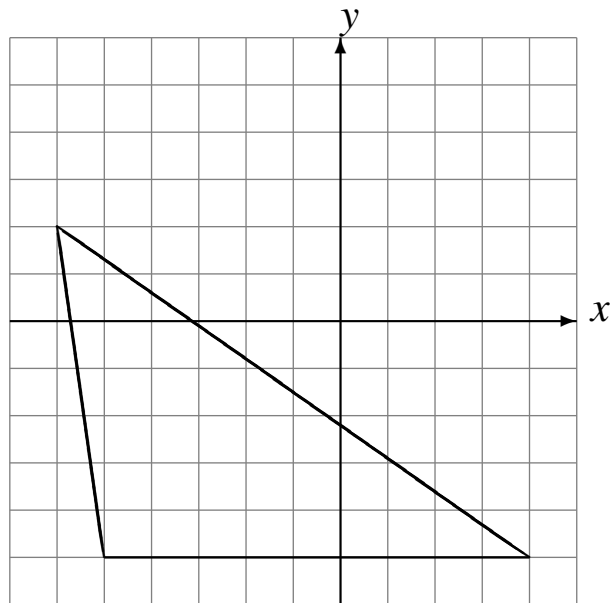
Draw each reflected image.

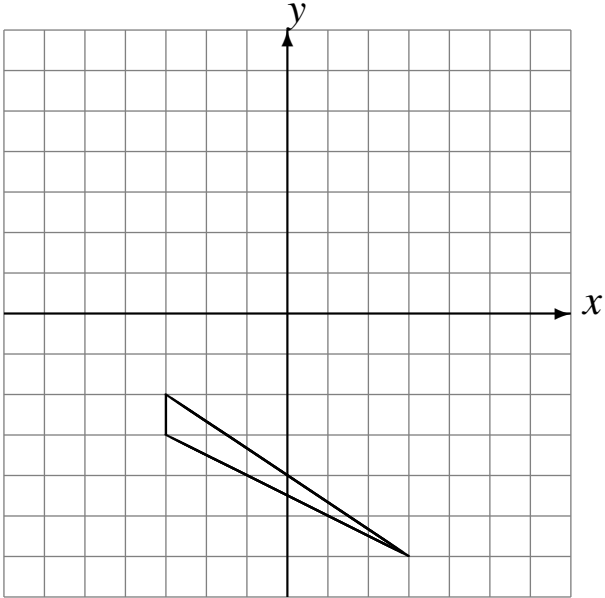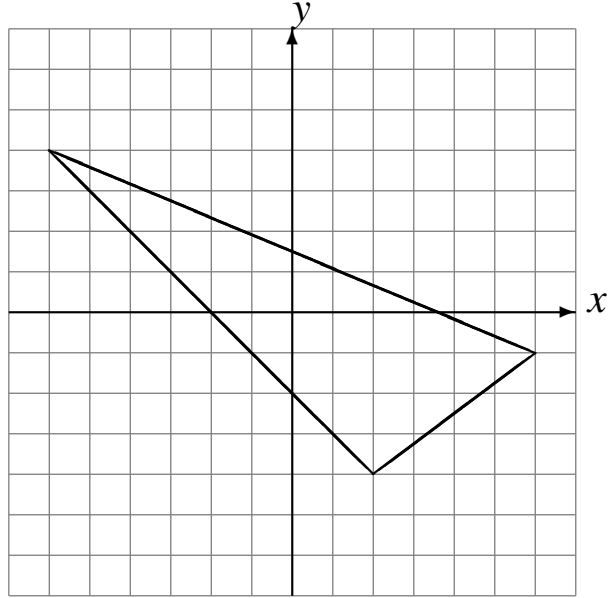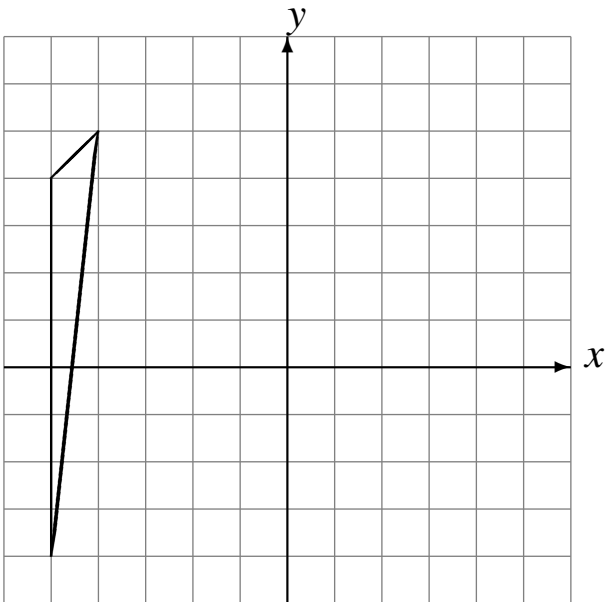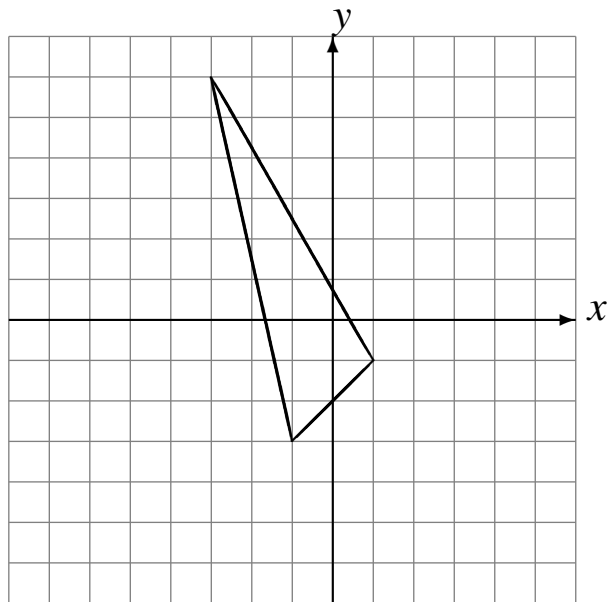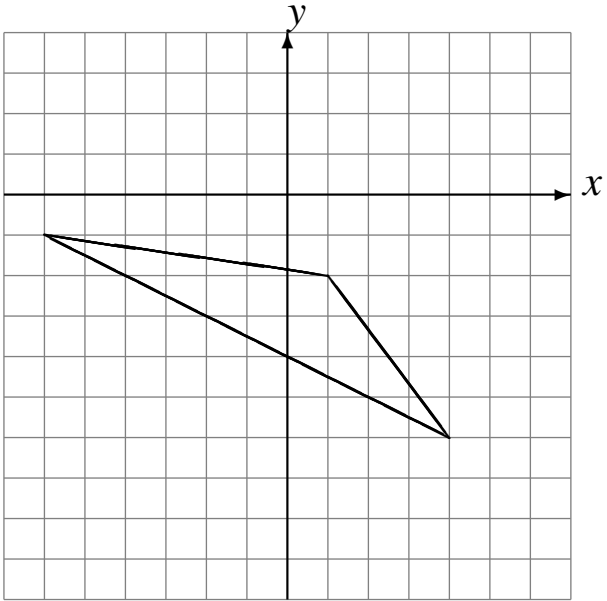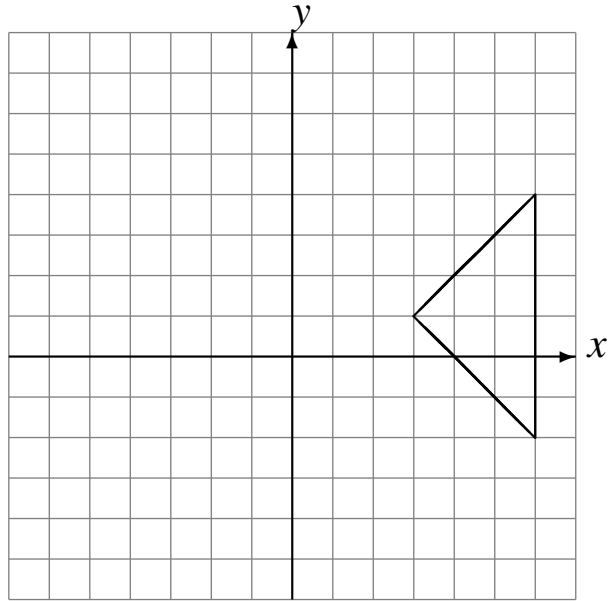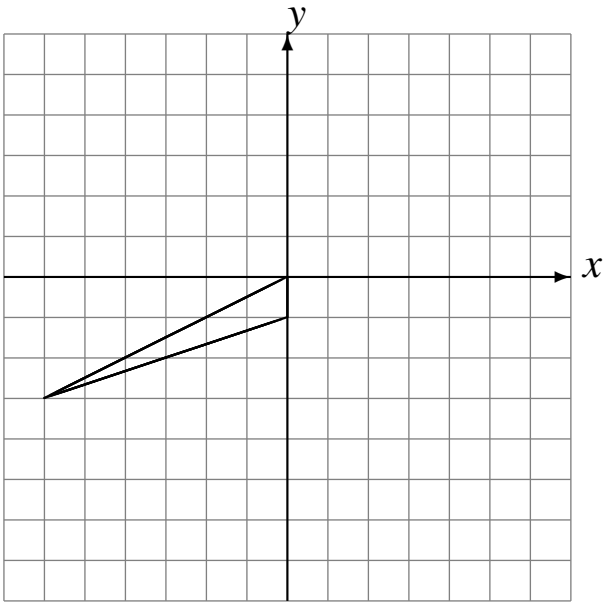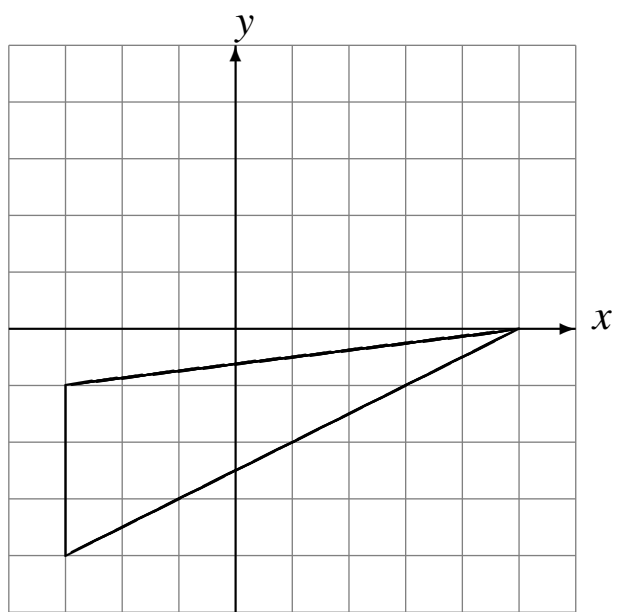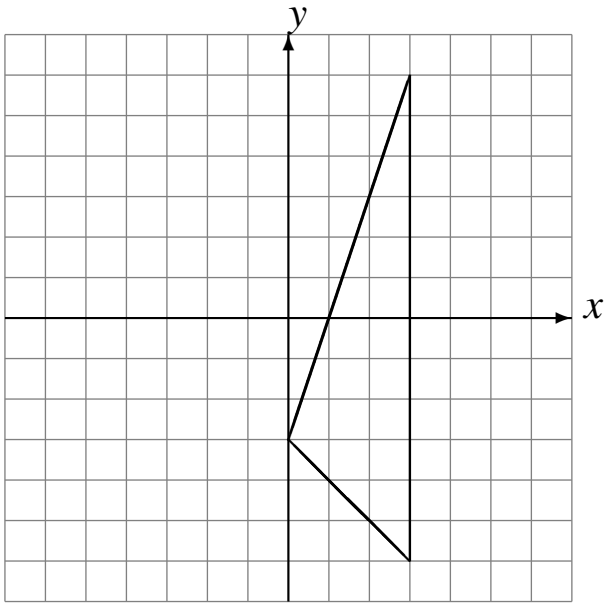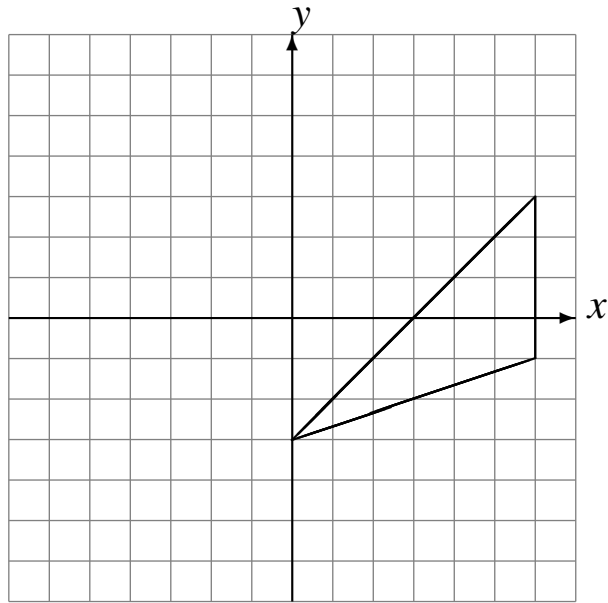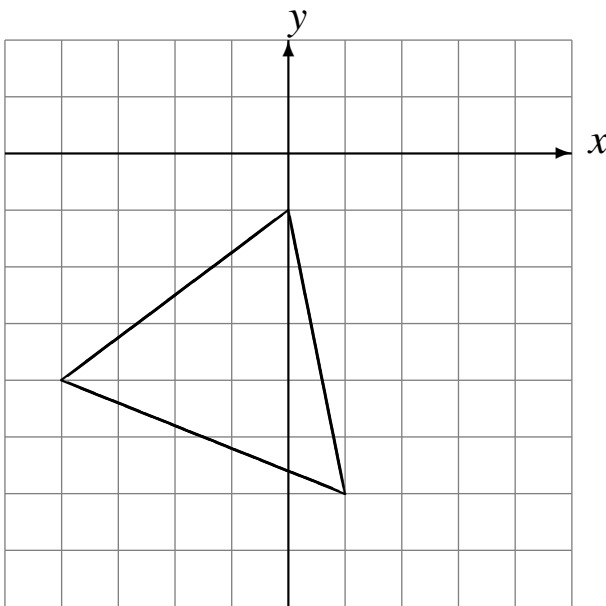Reflect over x = 0.
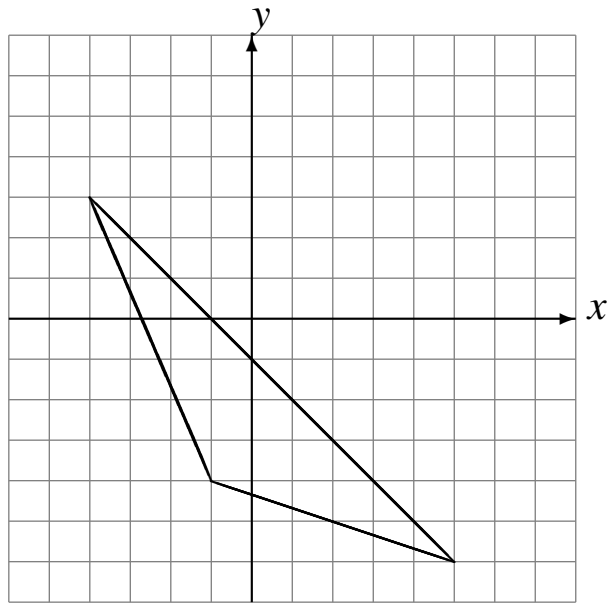
Reflect over x = 0.

Reflect over y = 0.
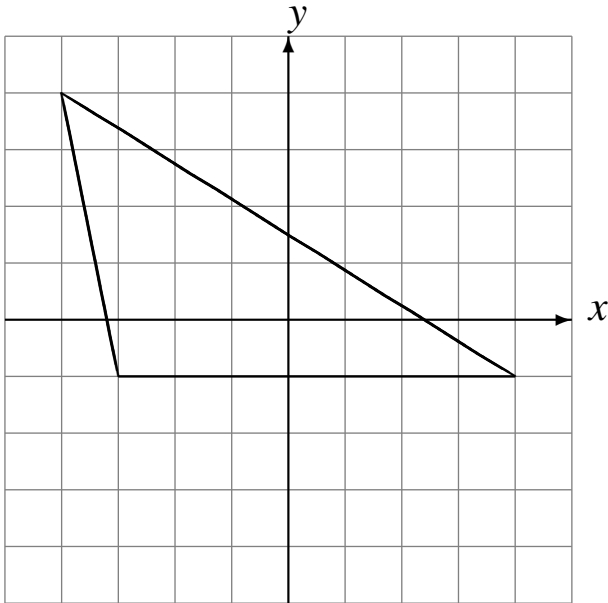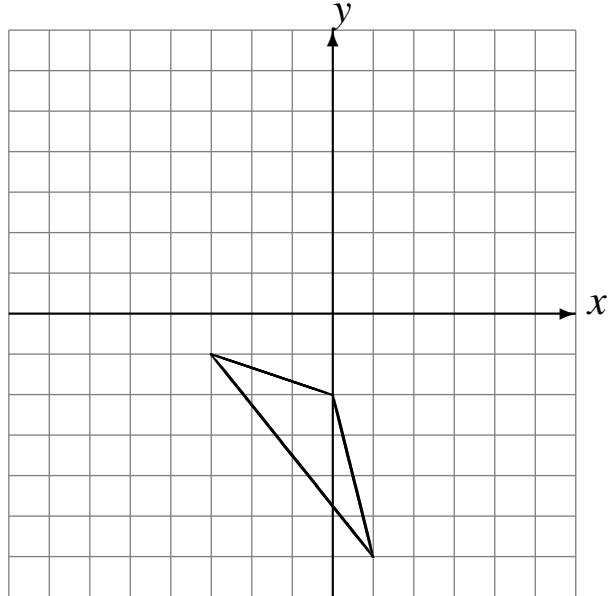
Reflect over y = 0.

Reflections (C)

Draw each reflected image.

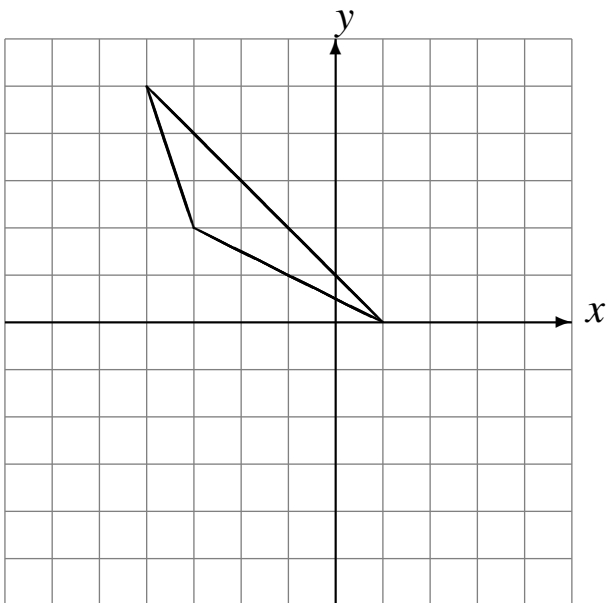Reflect over y = 0.

Reflect over x = 0.

Reflect over x = 0.

Reflect over y = 0.

Reflections (D)
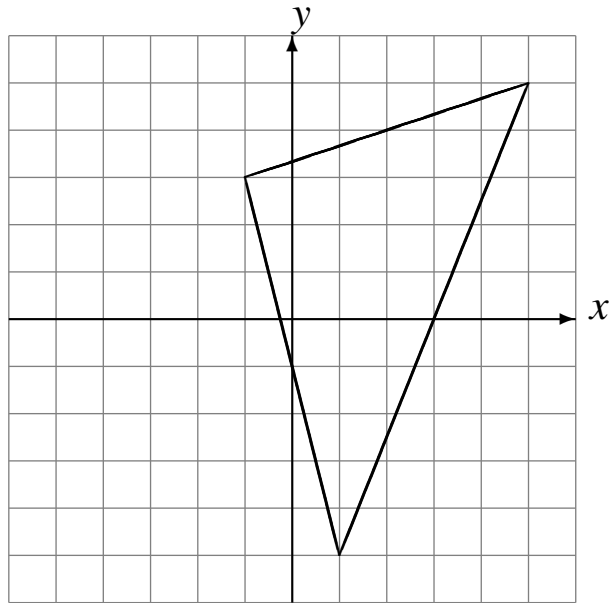
Draw each reflected image.

Reflect over x = 0.

Reflect over x = 0.

Reflect over x = 0.

Reflect over y = 0.

Reflections (E)

Draw each reflected image.

Reflect over x = 0.

Reflect over x = 0.

Reflect over x = 0.

Reflect over y = 0.

Reflections (F)

Draw each reflected image.

Reflect over y = 0.

Reflect over y = 0.

Reflect over y = 0.

Reflect over x = 0.

Reflections (G)
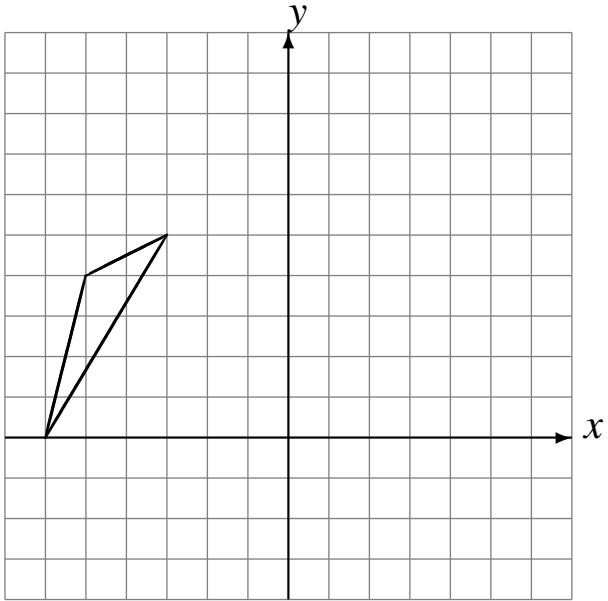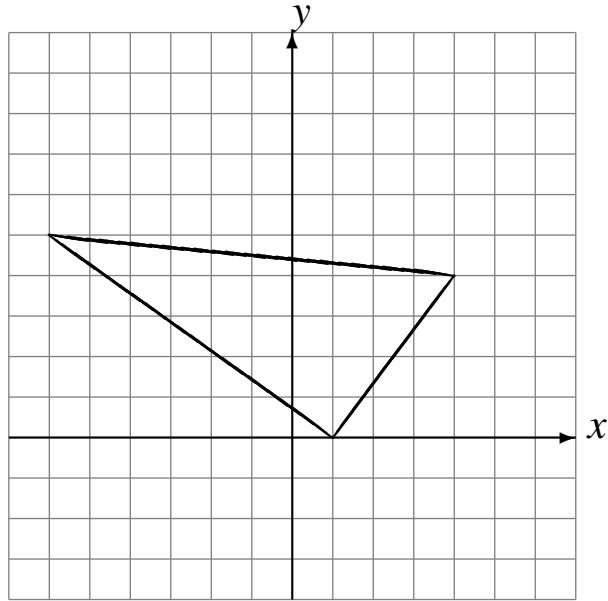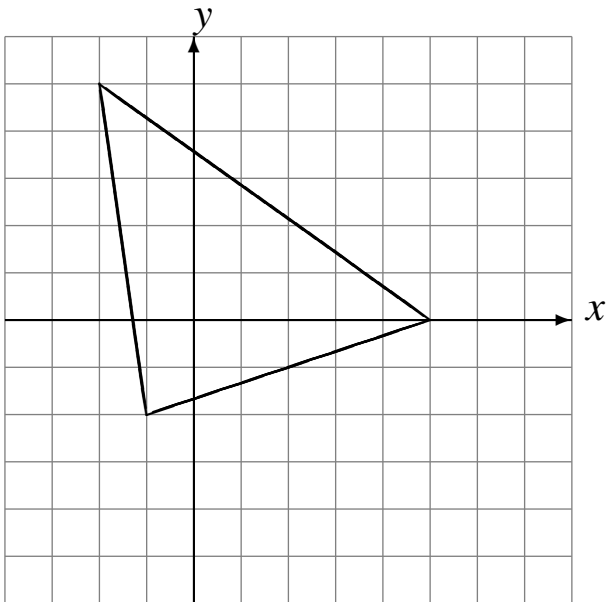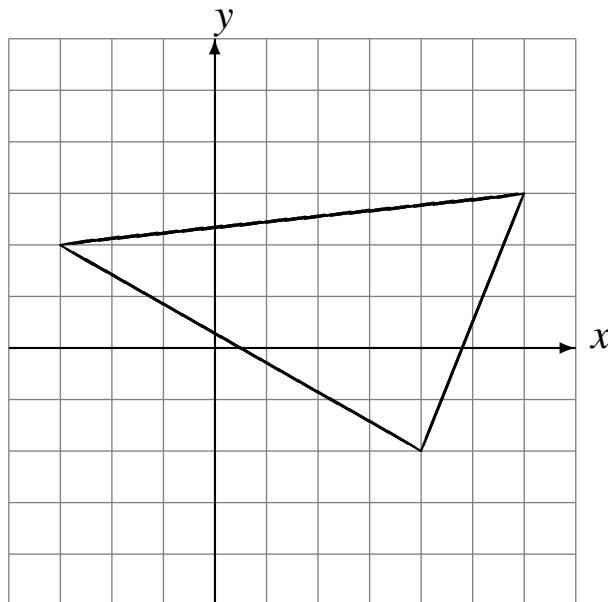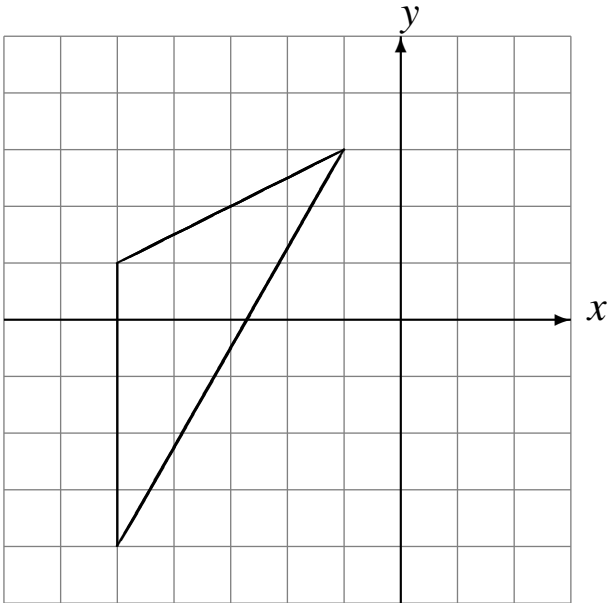
Draw each reflected image.

Reflect over x = 0.

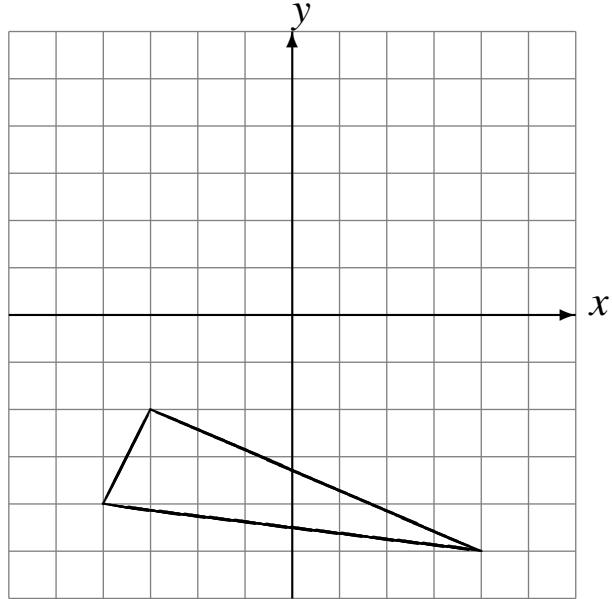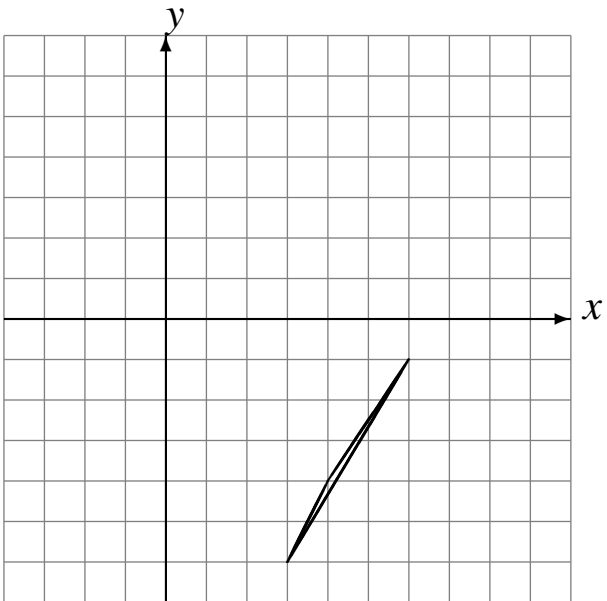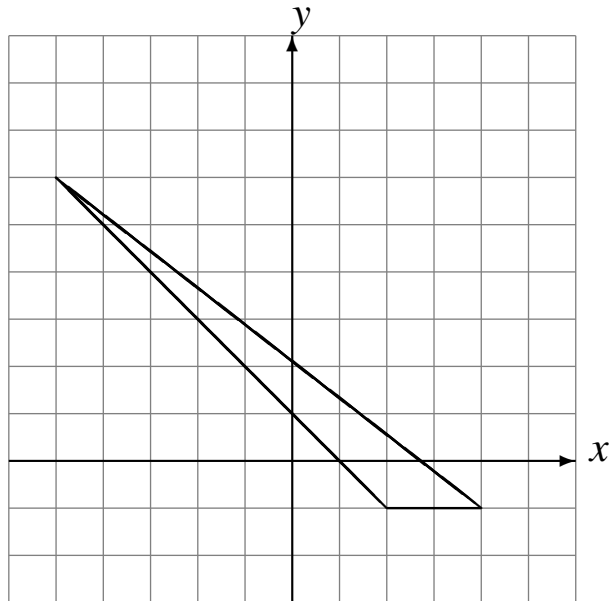Reflect over x = 0.

Reflect over y = 0.

Reflect over y = 0.

Reflections (H)

Draw each reflected image.

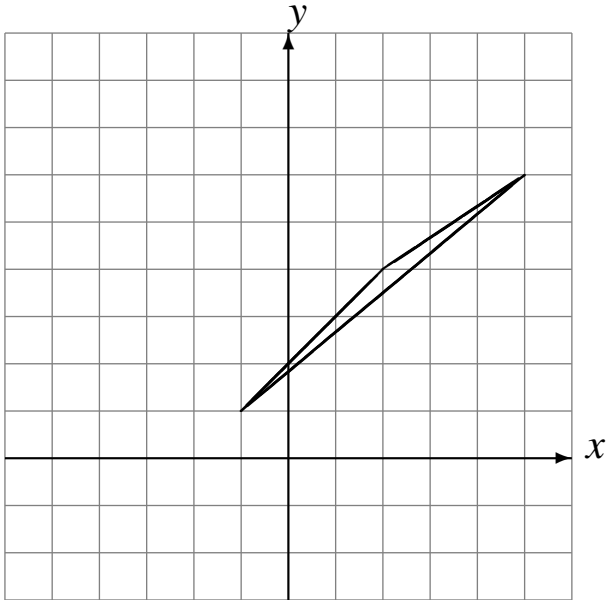Reflect over y = 0.

Reflect over y = 0.
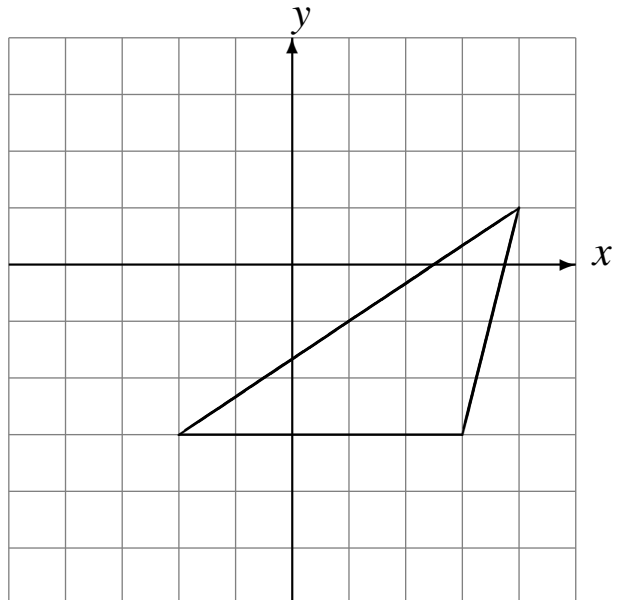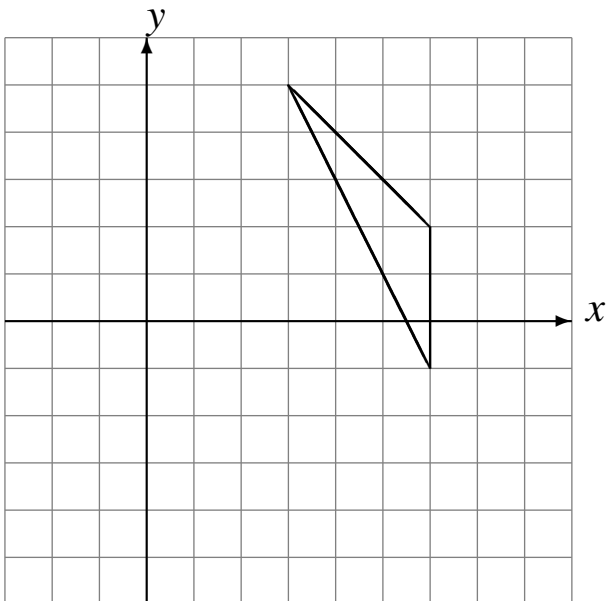
Reflect over y = 0.

Reflect over x = 0.

Reflections (I)

Draw each reflected image.

Reflect over x = 0.
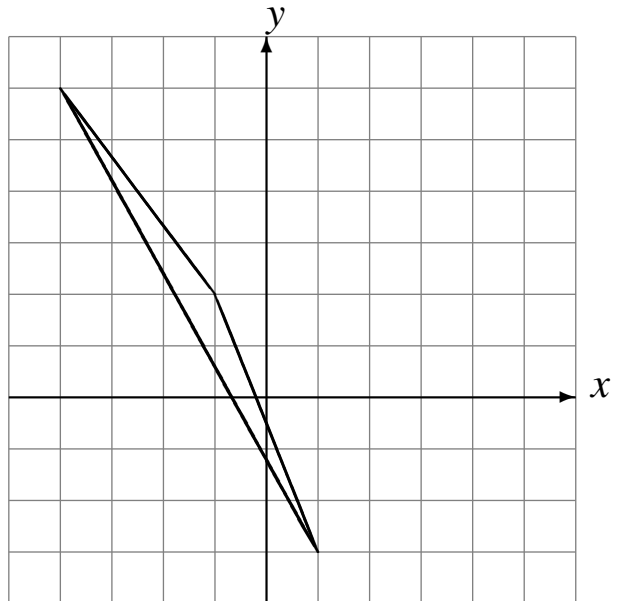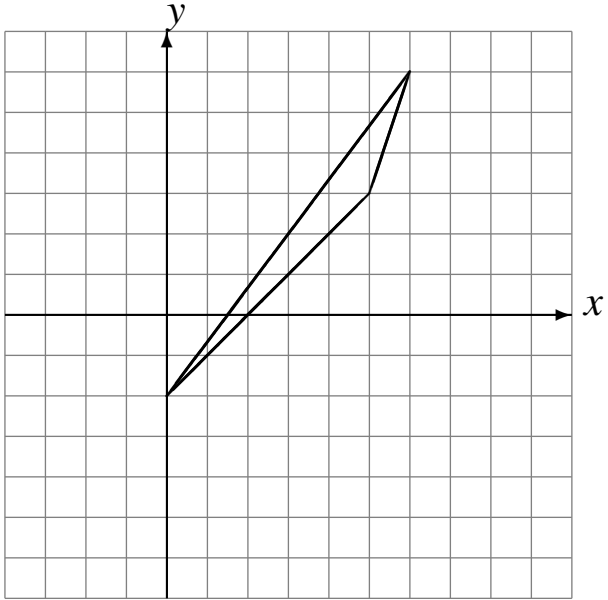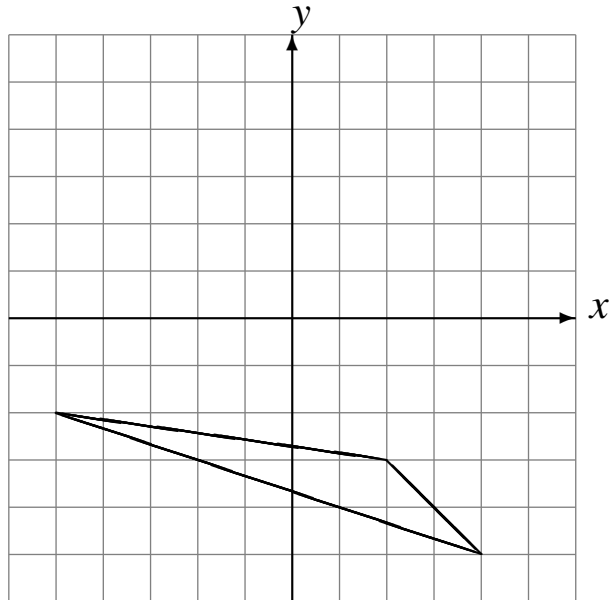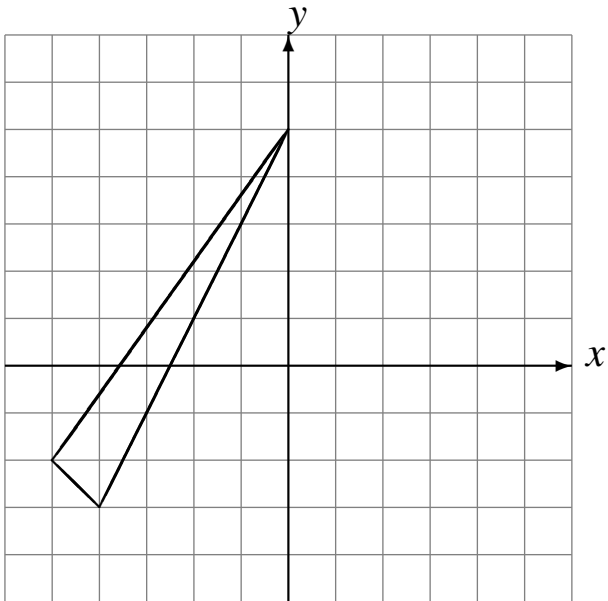

Reflect over x = 0.

Reflect over y = 0.

Reflect over x = 0.

Reflections (J)

Draw each reflected image.

Reflect over y = 0.

y

x

Reflect over y = 0.

y

x
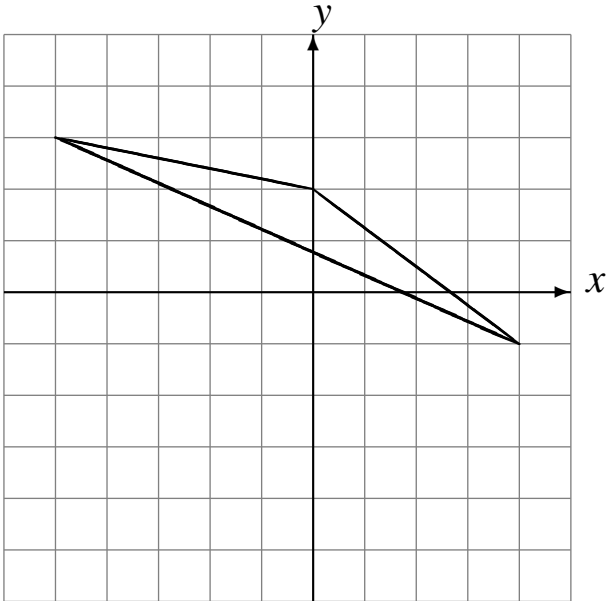
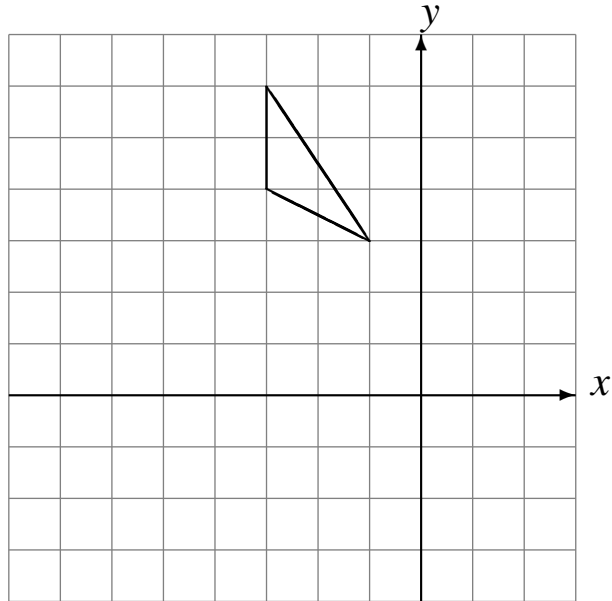Reflect over x = 0.

y

x

Reflect over x = 0.

y

x
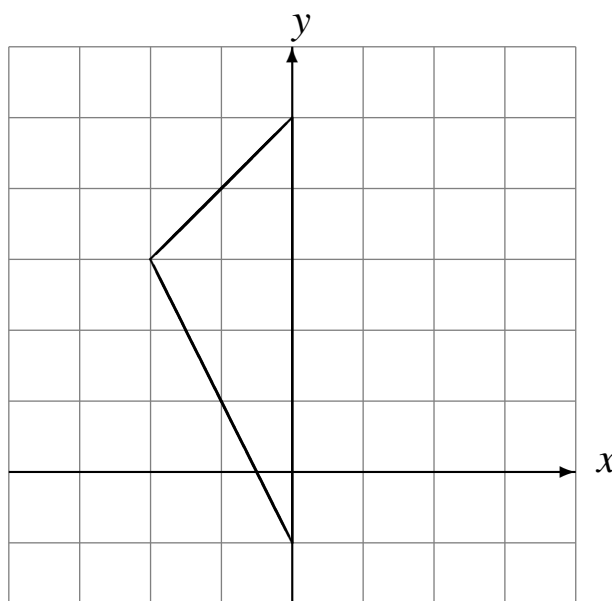
Rotations (J)

Draw the rotated image.
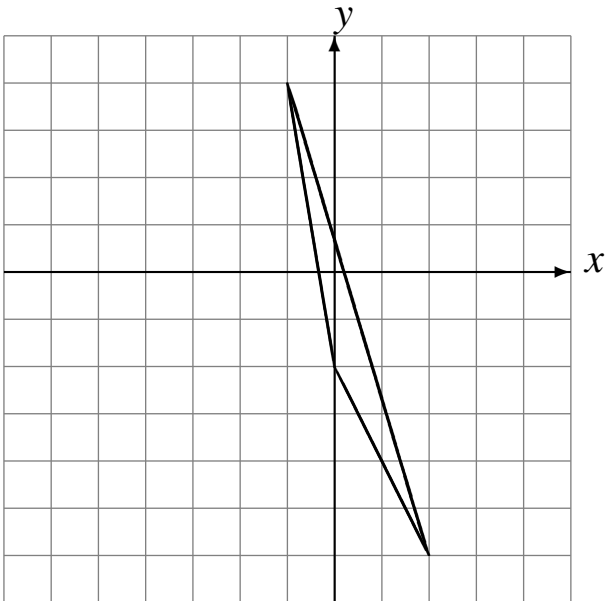
Rotate 90° counterclockwise about (0, 0).

Rotate 90° counterclockwise about (0, 0).

Rotate 90° clockwise about (0, 0).

Rotate 180° about (0, 0).