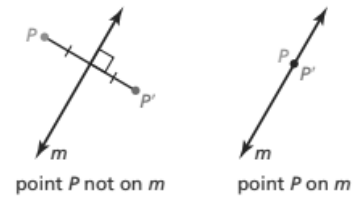


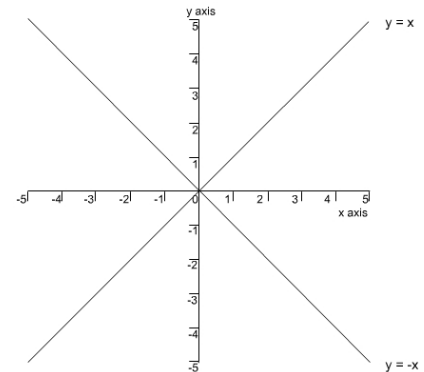
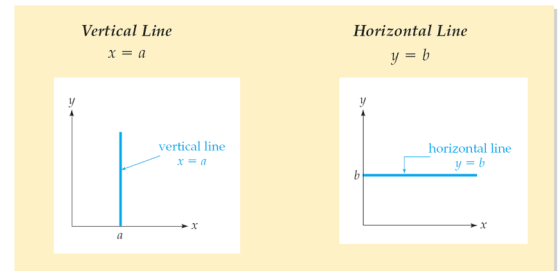
NOTES

- A **reflection** uses a line like a mirror to perform the transformation.
- The line is called the **line of reflection**.
- The **image** of a point reflected in a line is the same distance away from the line as the **pre-image** was.
 - The reflection must occur straight across the line, or perpendicular to the mirror.
- When the point is on the line of reflection, the **pre-image** becomes the **image**.

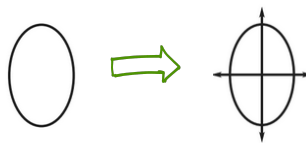


★ Reflections in the coordinate plane

- Reflection in the **x-axis** makes y opposite sign.
 $(x, y) \rightarrow (x, -y)$
- Reflection in the **y-axis** makes x opposite sign.
 $(x, y) \rightarrow (-x, y)$
- The **reflection line $y = \#$** is a horizontal line just like the x-axis.
- The **reflection line $x = \#$** is a vertical line just like the y-axis.
- Reflection in the **line $y = x$** switches coordinates.
 $(x, y) \rightarrow (y, x)$
- Reflection in the **line $y = -x$** switches the signs and positions of both coordinates.
 $(x, y) \rightarrow (-y, -x)$
- Reflection in the **origin** makes both coordinates opposite sign.
 $(x, y) \rightarrow (-x, -y)$



- A **line of symmetry** is a line drawn through a figure that will map one side of the figure onto the other.

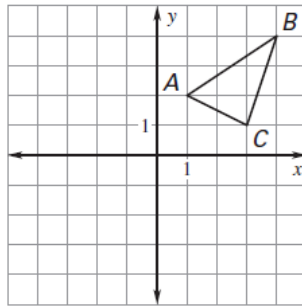


EXAMPLE 1 – Determine the number of lines of symmetry for the figure.

1. 	2. 	3. 	4.
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EXAMPLE 2 – Find the coordinates of the image after the reflection in the given line.

1. Line of reflection: x -axis



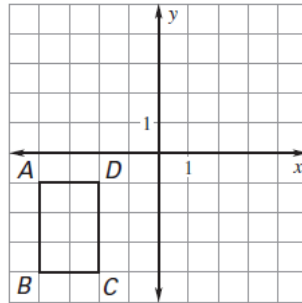
2. Line of reflection: x -axis

$A(2, 4)$

$B(-3, -3)$

$C(6, 0)$

3. Line of reflection: y -axis



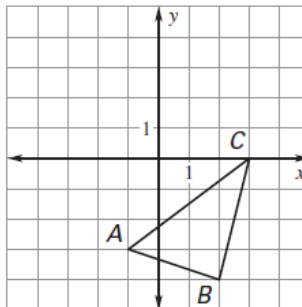
4. Line of reflection: y -axis

$A(4, 2)$

$B(-1, 0)$

$C(0, 4)$

5. Line of reflection: $y = x$



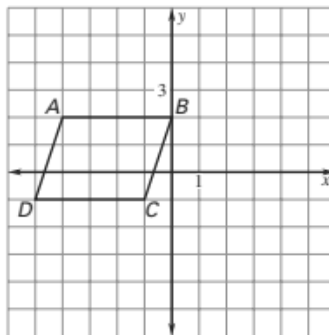
6. Line of reflection: $y = x$

$A(-1, 4)$

$B(-3, -2)$

$C(2, 0)$

7. Line of reflection: $y = -x$



8. Line of reflection: $y = -x$

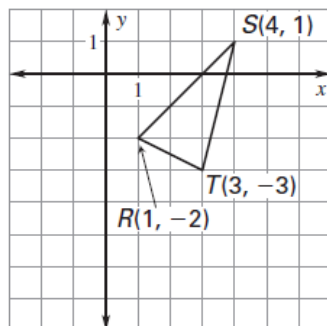
$A(6, 3)$

$B(-1, 2)$

$C(0, 7)$

EXAMPLE 3 – Find the coordinates of the image after the reflection in the given line.

1. Line of reflection:
 $y = -3$



2. Line of reflection:
 $x = 1$

