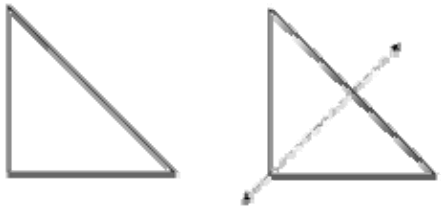
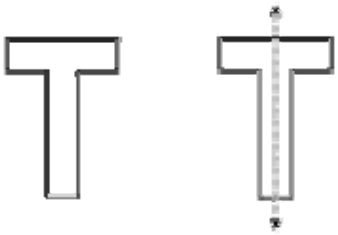
Lesson 10-10

Example 1 Identify Lines of Symmetry
Determine whether the figure has line symmetry. If so, copy the figure and draw all lines of symmetry.



The figure has one line of symmetry.

Example 2 Identify Lines of Symmetry
Determine whether the figure has line symmetry. If so, copy the figure and draw all lines of symmetry.



The figure has one line of symmetry.

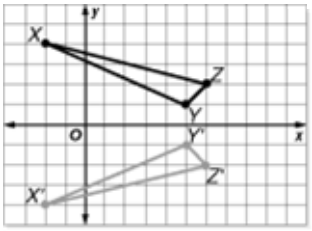
Example 3 Identify Lines of Symmetry
Determine whether the figure has line symmetry. If so, copy the figure and draw all lines of symmetry.

The figure has no line symmetry.

Example 4 Reflect a Figure Over the *x*-axis
Triangle *XYZ* has vertices *X*(–2, 4), *Y*(5, 1), and *Z*(6, 2). Find the coordinates of *XYZ* after a reflection over the *x*-axis. Then graph the figure and its reflected image.

Vertices of $\triangle XYZ$	Distance from *x*-axis	Vertices of $\triangle X'Y'Z'$
X(–2, 4)	4	*X′*(–2, –4)
Y(5, 1)	1	*Y′*(5, –1)
Z(6, 2)	2	*Z′*(6, –2)

Plot the vertices and connect to form $\triangle XYZ$. The *x*-axis is the line of symmetry. So, the distance from each point on $\triangle XYZ$ to the line of symmetry is the same as the distance from the line of symmetry to $\triangle X'Y'Z'$.



Example 5 Reflect a Figure Over the *y*-axis
Quadrilateral *ABCD* has vertices *A*(2, 3), *B*(3, 5), *C*(7, 1), and *D*(5, –2). Find the coordinates of *ABCD* after a reflection over the *y*-axis. Then graph the figure and its reflected image.

Vertices of quad *ABCD*	Distance from *y*-axis	Vertices of quad *A′B′C′D′*
A(2, 3)	2	*A′*(–2, 3)
B(3, 5)	3	*B′*(–3, 5)
C(7, 1)	7	*C′*(–7, 1)
D(5, –2)	5	*D′*(–5, –2)

Plot the vertices and connect to form quadrilateral *ABCD*. The *y*-axis is the line of symmetry. So, the distance from each point on quadrilateral *ABCD* to the line of symmetry is the same as the distance from the line of symmetry to quadrilateral *A′B′C′D′*.