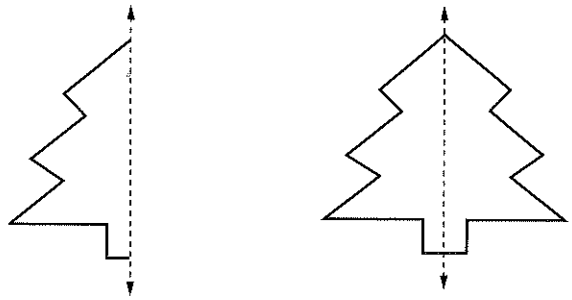
Name Date Time

LESSON 9•3

Exploring the Line of Reflection

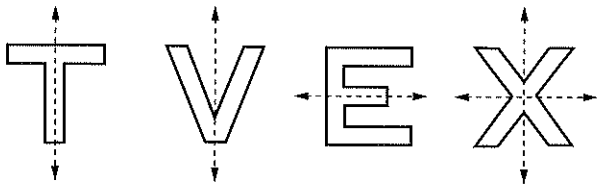
In geometry, when a line divides a figure into two parts that look exactly alike, but are facing opposite directions, the figure is said to be symmetric. The line is called a *line of symmetry* for the figure. Think of the line of symmetry as a line of reflection. The left side and its reflection together form the figure.



Reflect the left side to get the figure shown on the right.

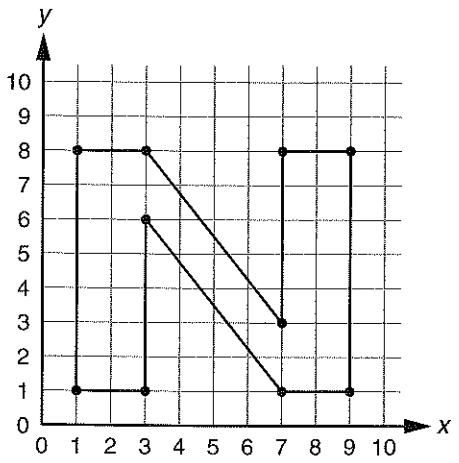
line of symmetry

The line of reflection may also be used to produce a new figure that has the same size and shape. The original figure is called the preimage and the new figure is called the image. The preimage and the image are reversed, and each point and its matching point are the same distance from the line of reflection.

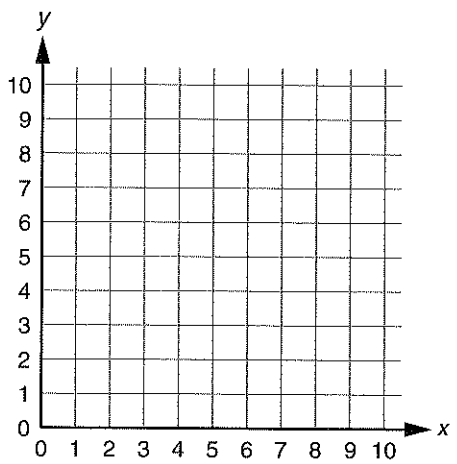


1. Graph the initial of your first name on the coordinate grid below. Record the coordinates.

Example:



Preimage Coordinates
(3,1)
(1,1)
(1,8)
(3,8)
(7,3)
(7,8)
(9,8)
(9,1)
(7,1)
(3,6)

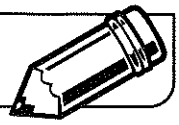


Preimage Coordinates

2. Follow the instructions on *Math Masters,* page 264 to graph reflections of your initial.

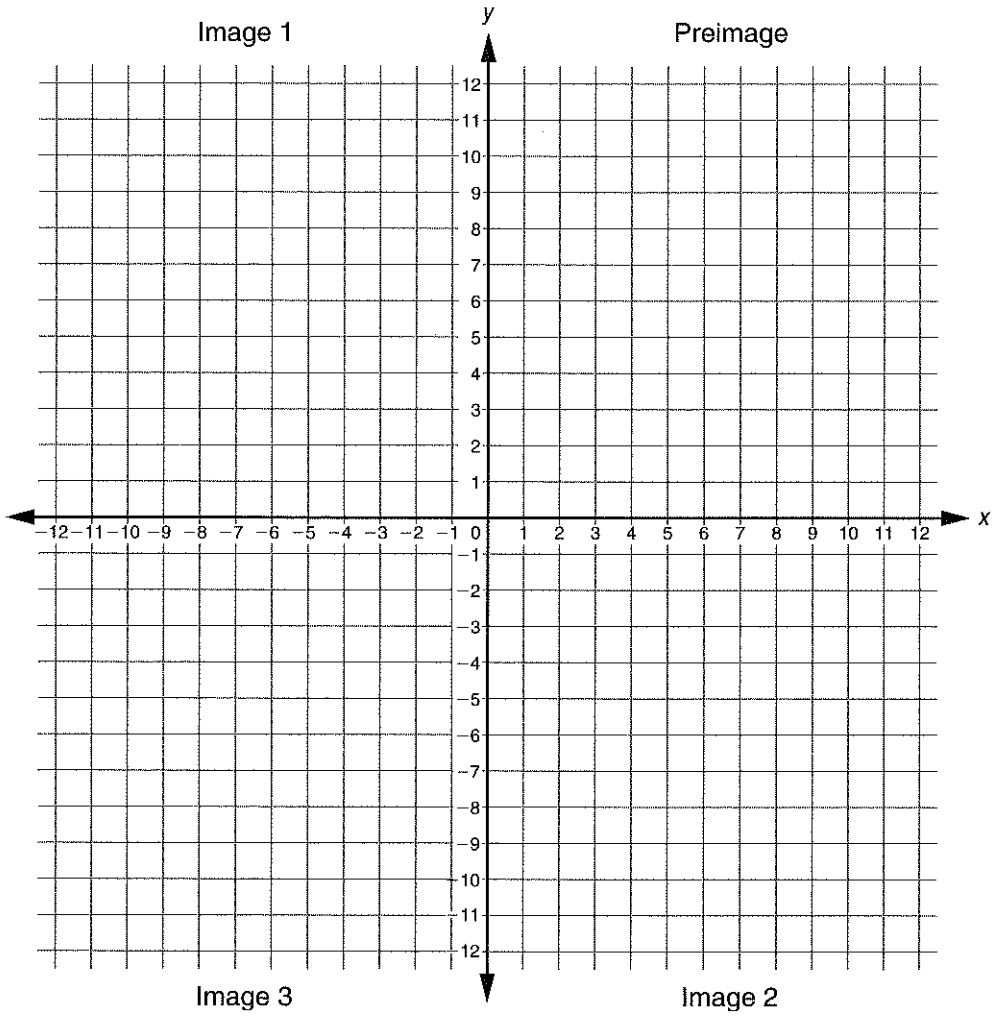
LESSON 9•3

Graphing Initials



1. Plot the points of your initial on the coordinate grid below.

   Find and record the rule for each of the following images and plot them on the coordinate grid.



2. Use the *y*-axis as a line of reflection between the Preimage and Image 1.

   Rule: _____

3. Use the *x*-axis as a line of reflection between the Preimage and Image 2.

   Rule: _____

4. Use the *y*-axis as a line of reflection between Image 2 and Image 3.

   Rule: _____

   _____

5. Draw a letter that has more than one line of symmetry. _____