Geometry

9.3 Perform Reflections

# Reflection

image

reflect

mirror

* Transformation that uses a line like a \_\_\_\_\_\_\_\_\_\_\_\_\_\_ to \_\_\_\_\_\_\_\_\_\_ an \_\_\_\_\_\_\_\_.

Line of Reflection

* That line is called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

reflection

line

distance

* P and P’ are the same \_\_\_\_\_\_\_\_\_\_\_\_\_ from the \_\_\_\_\_ of \_\_\_\_\_\_\_\_\_\_\_\_\_

reflection

perpendicular

* The line connecting P and P’ is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to the line of \_\_\_\_\_\_\_\_\_\_\_\_

Graph a reflection of ΔABC where A(1, 3), B(5, 2), and C(2, 1) in the line x = 2.

New points are A(3, 3), B(-1, 2), C(2, 1)

## Coordinate Rules for Reflections

(a, -b)

* Reflected in x-axis: (a, b) 🡪 \_\_\_\_\_\_\_\_\_\_

(-a, b)

* Reflected in y-axis: (a, b) 🡪 \_\_\_\_\_\_\_\_\_\_

(b, a)

* Reflected in y = x: (a, b) 🡪 \_\_\_\_\_\_\_\_\_\_

(-b, -a)

* Reflected in y = -x: (a, b) 🡪 \_\_\_\_\_\_\_\_\_\_

## Reflection Theorem

isometry

A reflection is an \_\_\_\_\_\_\_\_\_\_\_\_\_.

Graph ΔABC with vertices A(1, 3), B(4, 4), and C(3, 1). Reflect ΔABC in the lines y = -x and y = x.

y = -x: new points A(-3, -1), B(-4, -4), C(-1, -3)

y = x: new points A(3, 1), B(4, 4), C(1, 3)

# Reflection Matrix

Matrix multiplication

polygon

* You can find the reflection of a \_\_\_\_\_\_\_\_\_\_\_\_ using \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

matrix

vertices

* Write the polygon \_\_\_\_\_\_\_\_\_\_\_\_ as a \_\_\_\_\_\_\_\_\_\_

x-axis

* Multiply by for \_\_\_\_\_\_\_\_\_
  + Or for \_\_\_\_\_\_\_\_\_

image

polygon

reflection

y-axis

* [\_\_\_\_\_\_\_\_\_\_\_\_\_\_Matrix] [\_\_\_\_\_\_\_\_\_\_\_\_Matrix] = [\_\_\_\_\_\_\_\_\_Matrix]

The vertices of ΔLMN are L(-3, 3), M(1, 2), and N(-2, 1). Find the reflection of ΔLMN in the y-axis.

Assignment: 593 #4-24 even, 28, 40, 42-46 all = 18