

Name \_\_\_\_\_

## Polygons on a Coordinate Grid

**Essential Question** How can you plot polygons on a coordinate grid?

**Connect** You have learned to plot points on a coordinate grid. You can use that skill to plot polygons on a coordinate grid.



Camille is designing an indoor greenhouse on a coordinate grid. The floor of the greenhouse is a polygon. The vertices of the polygon can be graphed using the coordinates shown in the table. Plot and describe the floor of the greenhouse.

x	y
10	1
2	6
2	1
6	10
10	6

- What do x and y represent in the table?

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**Plot the polygon on a coordinate grid.**

**STEP 1** Write ordered pairs.

Use each row of the table to write an ordered pair.

(10, 1), (2, \_\_\_\_\_), (\_\_\_\_\_, \_\_\_\_\_),

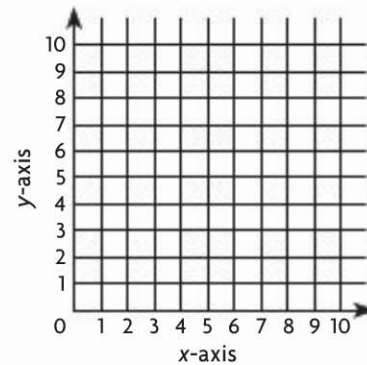
(\_\_\_\_\_, \_\_\_\_\_), (\_\_\_\_\_, \_\_\_\_\_).

**STEP 2** Graph a point for each pair on the coordinate grid.

**STEP 3** Connect the points.

So, the floor of the greenhouse is a \_\_\_\_\_.

- **What if** the greenhouse floor had only four of the five vertices given in the table and did not include (6, 10). What would the shape of the floor be? \_\_\_\_\_



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- A parallelogram on a coordinate grid has vertices at (3, 4), (6, 1), and (8, 4). What are the coordinates of the fourth vertex? **Explain** how you found the answer.

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**Math Talk**

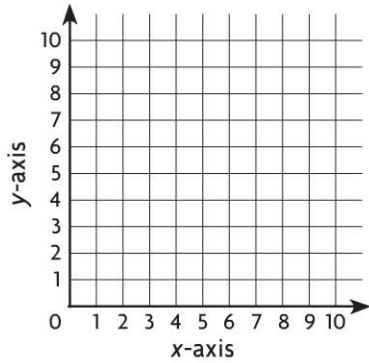
**Suppose** you know the vertices of a polygon. How can you identify what type of polygon it is without plotting the vertices on a coordinate grid?

## Share and Show

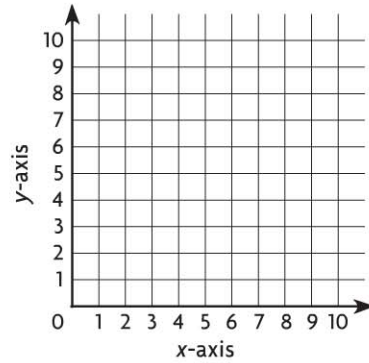


Plot the polygon with the given vertices on a coordinate grid.  
Identify the polygon.

1.  $(9, 6)$ ,  $(1, 7)$ ,  $(3, 1)$



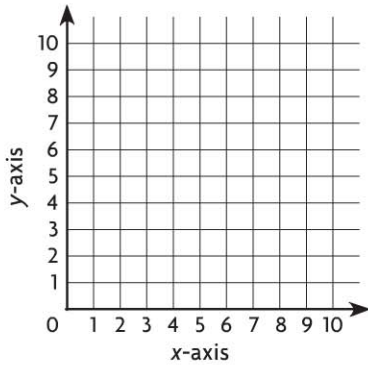
2.  $(1, 6)$ ,  $(8, 4)$ ,  $(1, 4)$ ,  $(8, 6)$



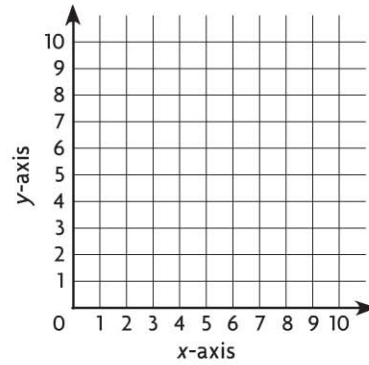
## On Your Own

Plot the polygon with the given vertices on a coordinate grid.  
Identify the polygon.

3.  $(2, 10)$ ,  $(10, 2)$ ,  $(10, 10)$ ,  $(2, 2)$



4.  $(10, 4)$ ,  $(2, 10)$ ,  $(3, 1)$ ,  $(8, 0)$ ,  $(7, 10)$ ,  $(1, 7)$



## Problem Solving REAL WORLD

5. A football field is a rectangle measuring 300 ft by 160 ft. Each unit on a coordinate grid represents 1 foot.  $(0, 0)$  and  $(0, 160)$  are two of the coordinates of a football field drawn on the grid. What are the coordinates of the other two vertices?