

Understand Positive and Negative Numbers

Name: _____

Prerequisite: How can you graph points on the coordinate plane?



Study the example showing how to name ordered pairs on the coordinate plane. Then solve problems 1–9.

Example

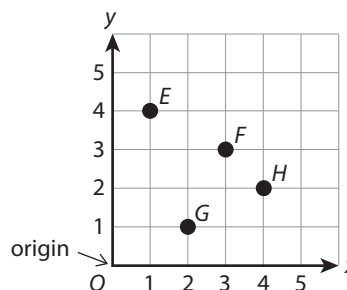
An ordered pair (x, y) describes the location of a point on the coordinate plane.

The first number in the ordered pair is the x -coordinate. It tells how many units the point is from the origin on the x -axis.

The second number is the y -coordinate. It tells how many units the point is from the origin on the y -axis.

The ordered pair for point E is $(1, 4)$.

The ordered pair $(0, 0)$ names the origin.



1 The x -coordinate of point F is ____ because it is ____ unit(s) to the right of the origin. The y -coordinate of point F is ____ because it is ____ unit(s) up from the origin. The ordered pair for point F is $(\text{____}, \text{____})$.

2 Ray says that the ordered pair for point G is $(1, 2)$. Is Ray correct? Why or why not?

3 Write the ordered pair for point H . Explain how you got your answer.

4 Plot and label point J at $(1, 2)$ on the coordinate plane.

Vocabulary

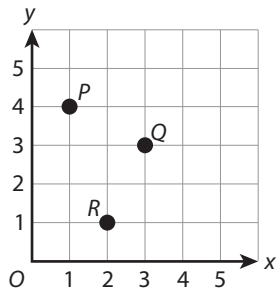
coordinate plane a two-dimensional space formed by two perpendicular number lines called axes.

origin the point $(0, 0)$ where the x -axis and y -axis intersect.

ordered pair a pair of numbers (x, y) that describe the location of a point on the coordinate plane.



Use the coordinate plane to solve problems 5–7.



5 Write the ordered pairs for points P , Q , and R .

6 Use the ordered pairs in the table to plot and label points S , T , and U on the coordinate plane.

Point	S	T	U
x -coordinate	1	3	2
y -coordinate	3	1	5

7 Choose a point on the coordinate plane. Describe its location in relation to the origin.

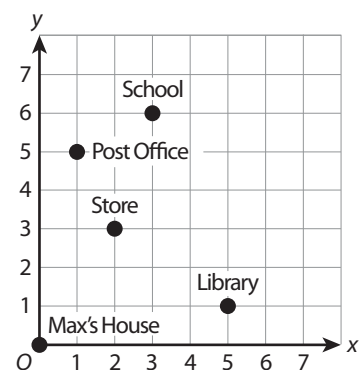
Use the following situation to solve problems 8–9.

Max drew a map of his neighborhood with his house located at the origin.

8 Which ordered pair describes the location of the library?

- A** (1, 1) **C** (5, 1)
B (1, 5) **D** (5, 5)

9 The park is located at $(7, 5)$. Plot and label the location of the park on the map. Describe the location of the park in relation to the location of the school.

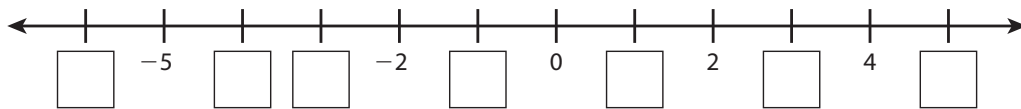


Identify Positive and Negative Numbers

Study the example showing positive and negative numbers on a number line. Then solve problems 1–10.

Example

Gareth is graphing some numbers and their opposites on the number line below. He has partially completed the number line as shown.



1 Fill in the missing numbers on Gareth's number line.

2 Choose a pair of numbers from the number line that you know are opposites. Explain how you know that the numbers are opposites.

3 Graph a point at 4 and at the opposite of 4 on the number line.

4 Mary says that the opposite of 0 is 0. Is she correct?

5 Name two numbers that are not integers but that are opposites. Explain how you know.

Vocabulary

opposites numbers that are the same distance from 0 but on opposite sides of 0.

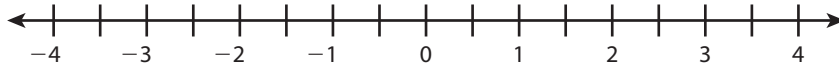
integers the set of whole numbers and their opposites.



Solve.

- 6** Use the number line below to graph and label each number and its opposite.

$1\frac{1}{2}$ -3.5 2.5



- 7** Pavel said that he could graph -5 by counting 5 units to the left of 5. Is he correct? Explain.

- 8** Write a positive or a negative number to represent each situation.

- a. 3 degrees below 0°F _____
- b. 6 feet above sea level _____
- c. lost 5 pounds _____
- d. found \$4 _____

- 9** A family wants to save \$100 each month. They record their progress toward this goal at the end of each month. In January they saved \$120 and recorded $+\$20$ at the end of the month. What should they record for the month of February if they only saved \$80 that month? Explain.

- 10** When would you use a negative number to describe a real-world amount? Give an example.
