

What is Coordinate Geometry? (Topic #1)

Word Bank

coordinate plane ordered pair quadrants x-axis	y-axis	coordinates abscissa ordinate origin
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Complete the following sentences.

1. Two perpendicular number lines can be used to form a system for locating points called a _____.
2. The horizontal line is called the _____.
3. The vertical line is called the _____.
4. The point where the axes intersect is called the _____, and this point is represented by the _____ (0, 0).
5. Other points are represented by ordered pairs according to their distance with respect to each axis. The ordered pair (- 2, 3) corresponds to - 2 on the x-axis and 3 on the y-axis. Each ordered pair is a set of _____ for the point it names.
6. The x-coordinate is called the _____ . The y-coordinate is called the _____ . A point is the graph of its ordered pair.
7. The x-axis and the y-axis divide the graph into four regions called _____ .

The signs of the coordinates in each quadrant are:

Quadrant I : _____

Quadrant II : _____

Quadrant III : _____

Quadrant IV : _____

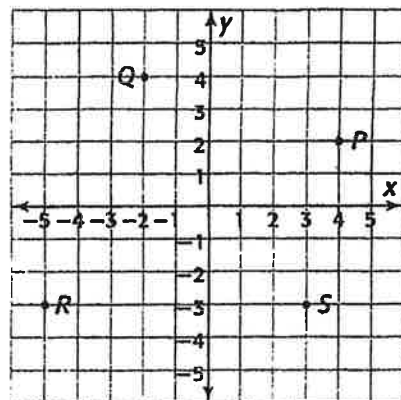
Practice: Use an ordered pair to name the location of each point.

1. P _____

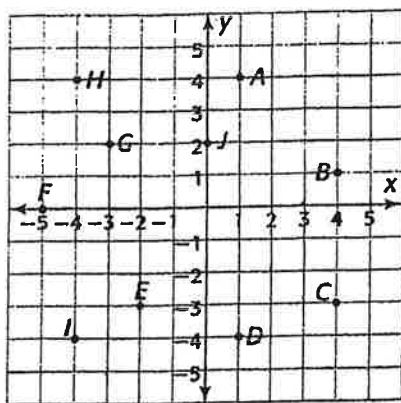
2. Q _____

3. R _____

4. S _____



Name the point that has the given coordinates. Give the quadrant for each point.



Coordinates	Point	Quadrant
a. $(-5, 0)$		
b. $(4, -3)$		
c. $(-4, 4)$		
d. $(0, 2)$		
e. $(-2, -3)$		
f. $(4, 1)$		

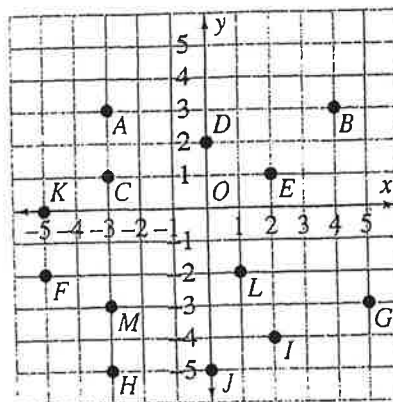
Homework #1

Name the point with the given coordinates in the graph at the right.

- | | | |
|-----------|-------------|-------------|
| 1. (2, 1) | 2. (-5, -2) | 3. (-3, -3) |
| 4. (0, 2) | 5. (2, -4) | 6. (-3, 1) |

Name the coordinates of each point in the graph at the right.

- | | | |
|-------|-------|-------|
| 7. J | 8. A | 9. K |
| 10. G | 11. L | 12. B |



In Exercises 13–23, state in which quadrant or on which axis you would find the point with the given coordinates.

- | | | |
|-----------------------------------|-----------------------------------|-----------------|
| 13. (12, 11) | 14. (0, -15) | 15. (-5, 8.9) |
| 16. (40, -35) | 17. (-3, -2.71) | 18. (112, 0) |
| 19. (0, 5) | 20. (8, -2) | 21. (-150, 200) |
| 22. (x, y) if $x > 0$ and $y < 0$ | 23. (x, y) if $x < 0$ and $y > 0$ | |



PROBLEM SOLVING HINT

For Exercises 22 and 23, try *Guess and Test*. Pick a point in a quadrant and test to see if its coordinates meet the conditions described.

24. **Geography** Degrees of longitude and latitude give locations of places on a map. For example, the longitude of Chicago is about 88° W and the latitude is about 42° N. Find the longitude and latitude of St. Paul and Lincoln.



Graph each point on the same coordinate plane.

25. A (4, -5)

26. B (-3, -2)

27. C (4, 0)

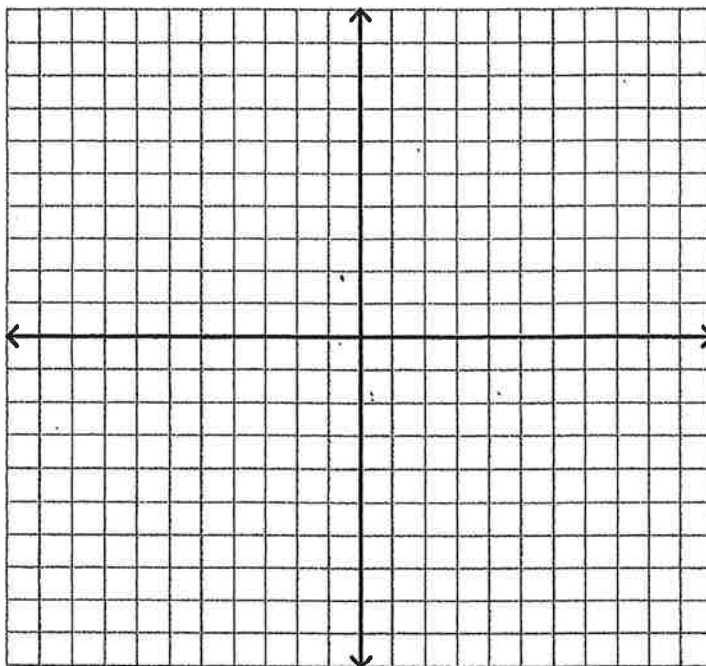
28. D (0, -3)

29. F (1, -4)

30. G (-4, -5)

31. H (3, 4)

32. K (-3, 2)



Choose A, B, C, or D.

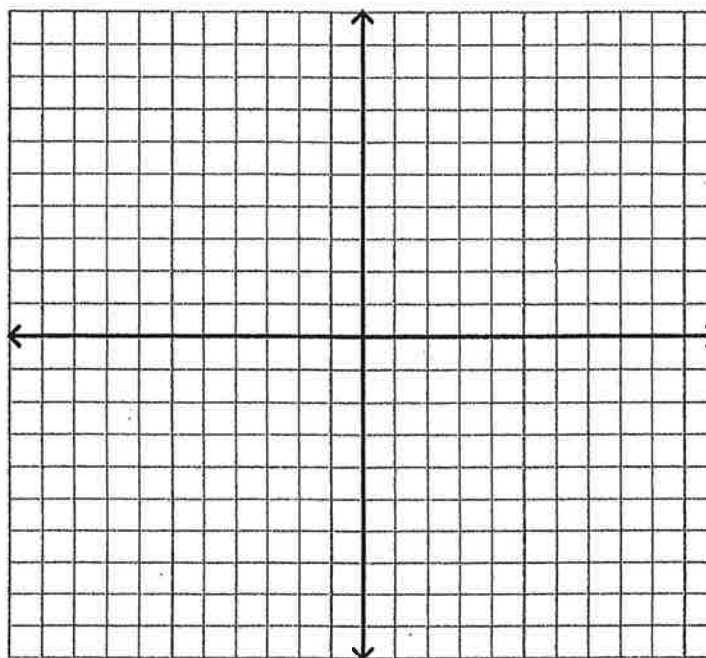
The coordinates of three vertices of a rectangle are (1, -1), (9, -1), and (1, -10). What are the coordinates of the fourth vertex?

A. (9, 1)

B. (1, -9)

C. (9, -10)

D. (-10, -9)



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coordinate plane ✓
ordered pair ✓
quadrants ✓
x-axis ✓

coordinates ✓
abscissa ✓
ordinate ✓
origin ✓

y-axis ✓

Complete the following sentences.

- Two perpendicular number lines can be used to form a system for locating points called a coordinate plane.
- The horizontal line is called the x-axis.
- The vertical line is called the y-axis.
- The point where the axes intersect is called the origin, and this point is represented by the ordered pair (0, 0).
- Other points are represented by ordered pairs according to their distance with respect to each axis. The ordered pair (-2, 3) corresponds to -2 on the x-axis and 3 on the y-axis. Each ordered pair is a set of coordinates for the point it names.
- The x-coordinate is called the abscissa. The y-coordinate is called the ordinate. A point is the graph of its ordered pair.
- The x-axis and the y-axis divide the graph into four regions called quadrants.

The signs of the coordinates in each quadrant are:

Quadrant I : (+, +)

Quadrant II : (-, +)

Quadrant III : (-, -)

Quadrant IV : (+, -)

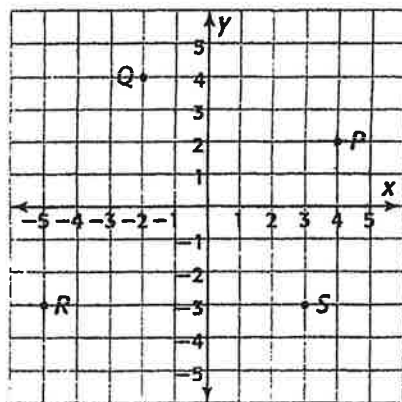
Practice: Use an ordered pair to name the location of each point.

1. P (4, 2)

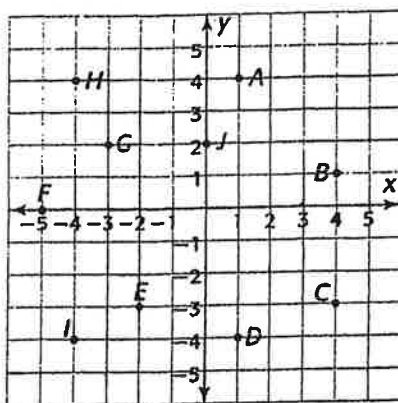
2. Q (-2, 4)

3. R (-5, -3)

4. S (3, -3)



Name the point that has the given coordinates. Give the quadrant for each point.



Coordinates	Point	Quadrant
a. (-5, 0)	F	x-axis
b. (4, -3)	C	IV
c. (-4, 4)	H	II
d. (0, 2)	J	y-axis
e. (-2, -3)	E	III
f. (4, 1)	B	I

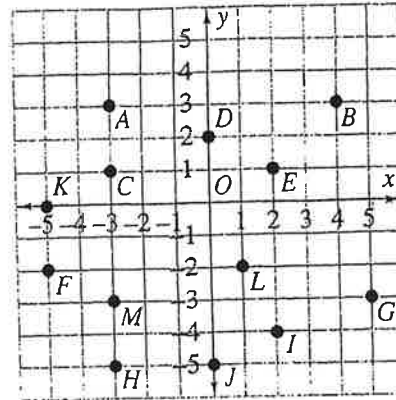
Homework #1

Name the point with the given coordinates in the graph at the right.

1. (2, 1) E 2. (-5, -2) F 3. (-3, -3) M
 4. (0, 2) D 5. (2, -4) I 6. (-3, 1) C

Name the coordinates of each point in the graph at the right.

7. J (0, -5) 8. A (-3, 3) 9. K (-5, 0)
 10. G (5, -3) 11. L (1, -2) 12. B (4, 3)



In Exercises 13-23, state in which quadrant or on which axis you would find the point with the given coordinates.

13. (12, 11) I 14. (0, -15) y-axis 15. (-5, 8.9) II
 16. (40, -35) IV 17. (-3, -2.71) III 18. (112, 0) x-axis
 19. (0, 5) y-axis 20. (8, -2) IV 21. (-150, 200) III
 22. (x, y) if $x > 0$ and $y < 0$ 23. (x, y) if $x < 0$ and $y > 0$

24. IV **Geography** Degrees of longitude and latitude give locations of places on a map. For example, the longitude of Chicago is about 88° W and the latitude is about 42° N. Find the longitude and latitude of St. Paul and Lincoln. II



PROBLEM SOLVING HINT

For Exercises 22 and 23, try *Guess and Test*. Pick a point in a quadrant and test to see if its coordinates meet the conditions described.



Graph each point on the same coordinate plane.

25. $A(4, -5)$ ✓

26. $B(-3, -2)$ ✓

27. $C(4, 0)$ ✓

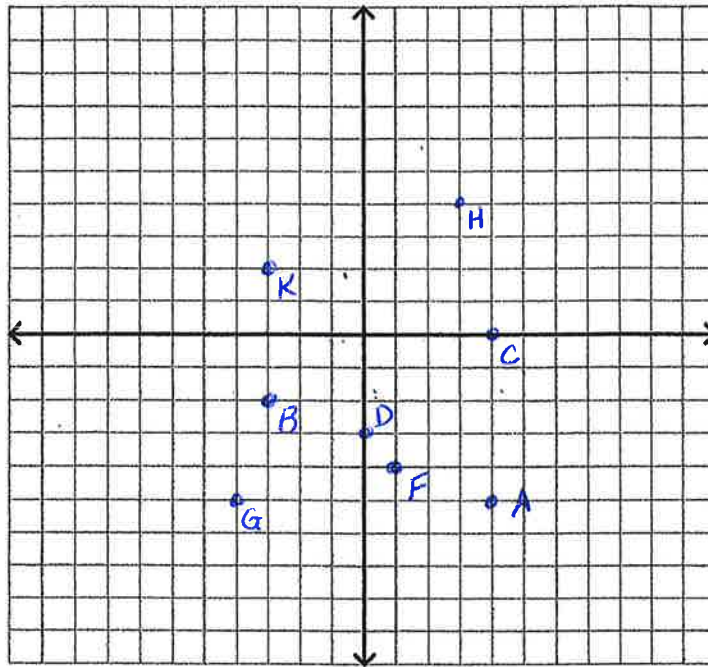
28. $D(0, -3)$ ✓

29. $F(1, -4)$ ✓

30. $G(-4, -5)$ ✓

31. $H(3, 4)$ ✓

32. $K(-3, 2)$ ✓



Choose A, B, C, or D.

The coordinates of three vertices of a rectangle are $(1, -1)$, $(9, -1)$, and $(1, -10)$. What are the coordinates of the fourth vertex?

A. $(9, 1)$

B. $(1, -9)$

C. $(9, -10)$

D. $(-10, -9)$

