Name: _____ **Date:** _____

The Coordinate System

The **coordinate system** is made up of a coordinate plane on which you can locate points using the x-axis and y-axis.

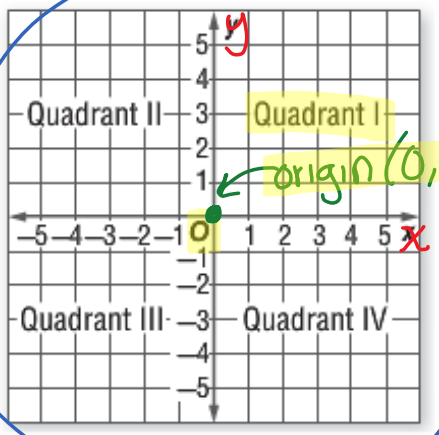
These axes are simply horizontal and vertical number lines.

Any point on the coordinate plane can be located with an ordered pair. (x, y)

Identify Points and Ordered Pairs

A coordinate plane is formed when the *x*-axis and *y*-axis intersect at their zero points. The axes separate the coordinate plane into four regions called **quadrants**.

You can use the location on the plane or use the *x*-coordinates and *y*-coordinates to identify the quadrant in which a point is located.



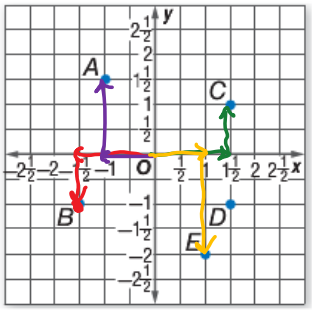
Examples

Tutor

1. **Identify the ordered pair that names point *C*. Then identify the quadrant in which it is located.**

Start at origin!

(1½, 1) QI



2. **Identify the point located at $(-1\frac{1}{2}, -1)$. Then identify the quadrant in which it is located.**

(x, y) (⇄, ↑↓)

B QIII

Ordered Pairs

A point located on the *x*-axis will have a *y*-coordinate of 0. A point located on the *y*-axis will have an *x*-coordinate of 0. Points located on an axis are not in any quadrant.

Got It? Do these problems to find out.

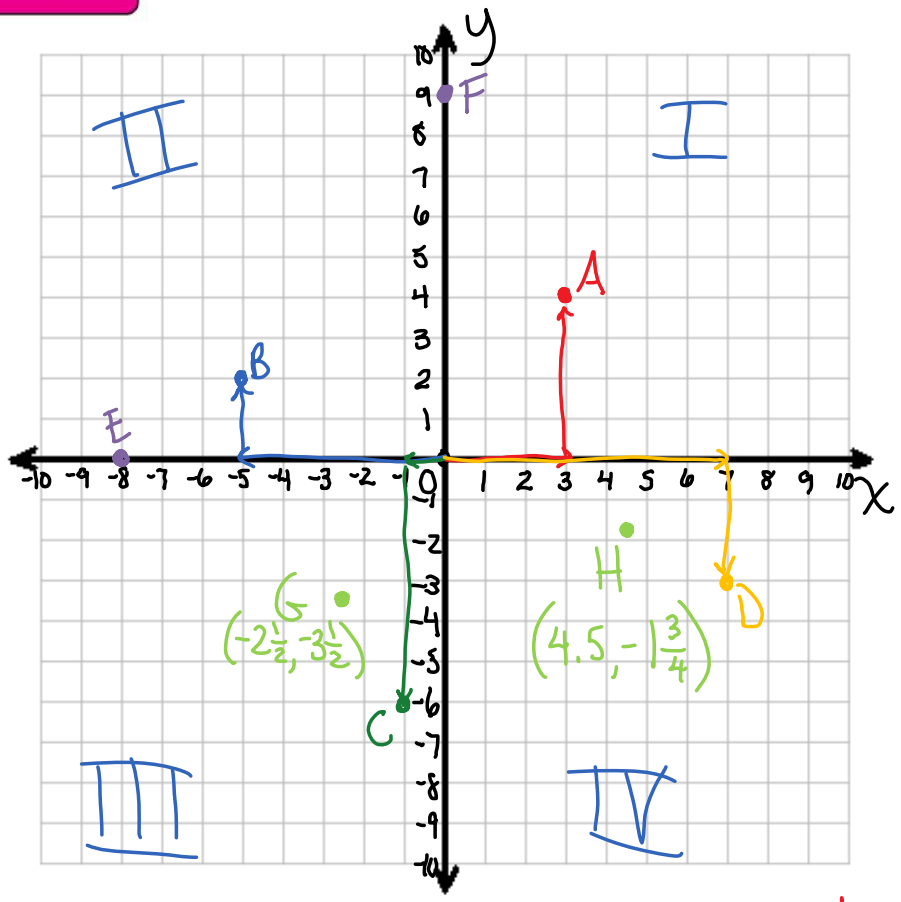
a. Identify the ordered pair that names point *A*. Then identify the quadrant in which it is located. → (−1, 1½) QII

b. Identify the point located at (1, −2). Then identify the quadrant in which it is located. E IV

Graph Ordered Pairs

*When graphing **ordered pairs**, think of them as a set of directions! The first **coordinate** (x) tells you how far to move on the x-axis from the **origin**. The second coordinate (y) tells you how far to move on the y-axis from the **origin**.*

Ordered pair: (x, y)



Example 1: Graph point *A* at (3, 4).

Since we have a positive 3 as our x and a positive 4 as our y, we move 3 places to the right and then 4 places up.

Example 2: Graph point *B* at (-5, 2).

Since we have a negative five as our x and a positive 2 as our y, we move 5 places to the left and then 2 places up.

Example 3: Graph point *C* at (-1, -6).

Example 4: Graph point *D* at (7, -3).

Example 5: Graph point *E* at (-8, 0).

Example 6: Graph point *F* at (0, 9).

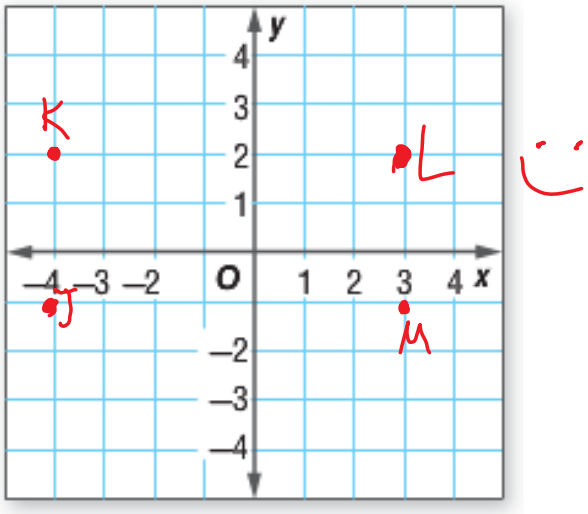
Example 7: Graph point *G* at $(-2\frac{1}{2}, -3\frac{1}{2})$.

Example 8: Graph point *H* at $(4.5, -1\frac{3}{4})$.

Quadrant/Axis	x-coordinate	y-coordinate	Example
I	+	+	(8, 3)
II	−	+	(-6, 2)
III	−	−	(-4, -7)
IV	+	−	(4, -2)
x	#	0	(-10, 0)
y	0	#	(0, 10)

Graph and label the following points:
J (-4, -1); *K* (-4, 2); *L* (3, 2)

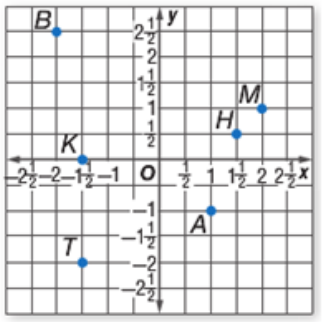
What is the ordered pair of the fourth point, M, that will form a rectangle with the given ordered pairs?



M (3, -1)

Guided Practice

Identify the ordered pair that names each point or the name of each point. Then identify the quadrant in which it is located. (Examples 1 and 2)

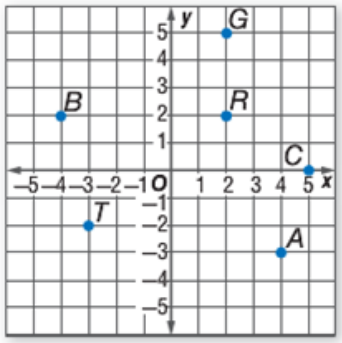


1. T $(-1\frac{1}{2}, -2)$ III

2. $(-1\frac{1}{2}, 0)$ K x-axis

3. $(-2, 2\frac{1}{2})$ B II

Identify the ordered pair that names each point. Then identify the quadrant in which it is located. (Example 1)



1. R $(2,2)$ I

2. G $(2,5)$ I

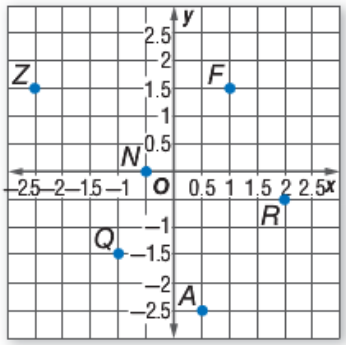
3. B $(-4,2)$ II

4. T $(-3,-2)$ III

5. C $(5,0)$ x-axis

6. A $(4,-3)$ IV

Identify the name of each point. Then identify the quadrant in which it is located. (Example 2)



7. $(-2.5, 1.5)$ Z; II

8. $(1, 1.5)$ F; I

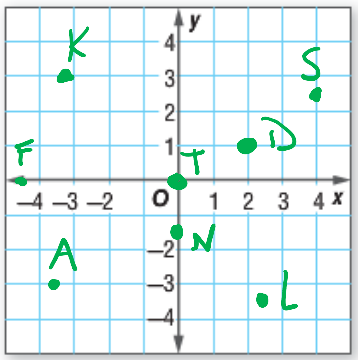
9. $(0.5, -2.5)$ A; IV

10. $(2, -0.5)$ K; IV

11. $(-0.5, 0)$ N; x-axis

12. $(-1, -1.5)$ Q; III

Graph and label each point on the coordinate plane to the right.
(Examples 1 and 2)



1. $T(0, 0)$

2. $D(2, 1)$

3. $K(-3.25, 3)$

4. $N\left(0, -1\frac{1}{2}\right)$

5. $F(-4.5, 0)$

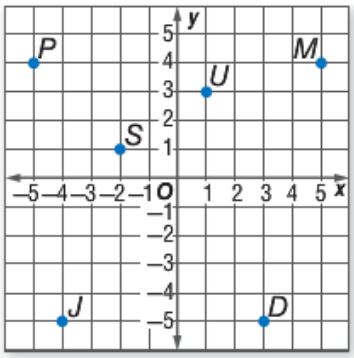
6. $A\left(-3\frac{1}{2}, -3\right)$

7. $L(2.5, -3.5)$

8. $S\left(4, 2\frac{1}{2}\right)$

Extra Practice

Identify the ordered pair that names each point. Then identify the quadrant in which it is located.



19. *U*

(1, 3); I

Both numbers are positive so it is in the first quadrant.

20. *D*

(3, −5)

IV

21. *S*

(−2, 1)

II

22. *P*

(−5, 4)

II

23. *J*

(−4, −5)

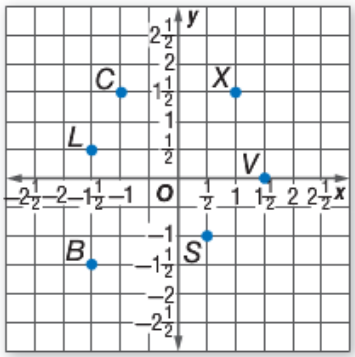
III

24. *M*

(5, 4)

I

Identify the name of each point. Then identify the quadrant in which it is located.



25. $\left(-1\frac{1}{2}, \frac{1}{2}\right)$

L ; II

26. $\left(1, 1\frac{1}{2}\right)$

X ; I

27. $\left(\frac{1}{2}, -1\right)$

S ; IV

28. $\left(1\frac{1}{2}, 0\right)$

V ; x-axis

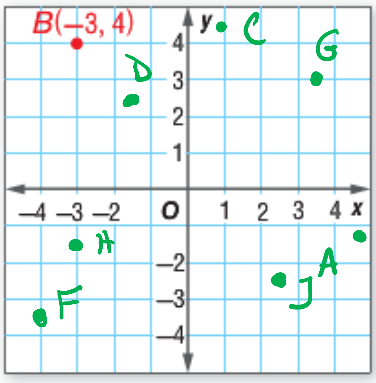
29. $\left(-1\frac{1}{2}, -1\frac{1}{2}\right)$

B ; III

30. $\left(-1, 1\frac{1}{2}\right)$

C ; II

Graph and label each point on the coordinate plane to the right.



21. *B*(−3, 4) The *x*-coordinate is −3. The *y*-coordinate is 4.

22. *D*(−1.5, 2.5)

23. $A\left(4\frac{3}{4}, -1\frac{1}{4}\right)$

24. $J\left(2\frac{1}{2}, -2\frac{1}{2}\right)$

25. *C*(1, 4.5)

26. *F*(−4, −3.5)

27. $G\left(3\frac{1}{2}, 3\right)$

28. $H\left(-3, -1\frac{1}{2}\right)$