

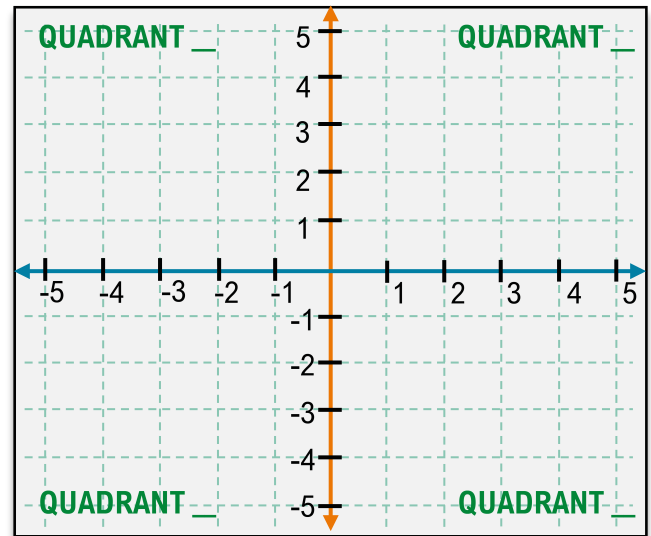
TOPIC: RECTANGULAR COORDINATE SYSTEM

Introduction to the Rectangular Coordinate System

- ◆ Graphing in this course usually involves plotting _____ or _____ on the rectangular coordinate system.

Rectangular Coordinate System ("Cartesian Plane"): 2 perpendicular _____ form a 2-D plane.

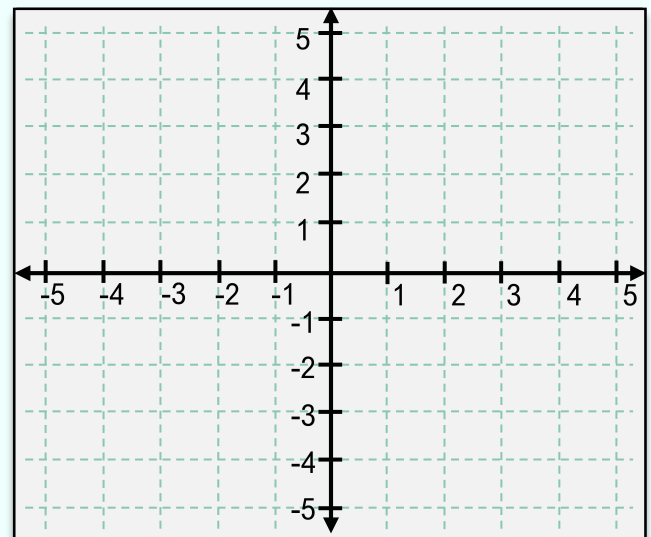
- ▶ Horizontal axis is the – axis
- ▶ Vertical axis is the – axis
- ▶ **Ordered pairs / points:** Position *always* in form _____
- ▶ **Origin:** point (,) where *x* & *y* axes intersect
 - x* values are [+ | -] [**RIGHT** | **LEFT**] of origin
 - y* values are [+ | -] [**UP** | **DOWN**] of origin
- ▶ **Quadrants:** *x* & *y* axes divide graphs into 4 _____.
Q1 starts at top-right, #s continue counter-clockwise



EXAMPLE: Plot the points *A* (4, 3), *B* (-3, 2), *C* (-2, -3), *D* (5, -4), *E* (0, 0), *F* (0, -3) on the graph above.

EXAMPLE

Graph the points *W* (1, -2), *X* (5, 2), *Y* (-3, -4),
Z (-4, 3). Identify the **quadrant** of each point.



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PRACTICE

In which quadrant is the following point located?

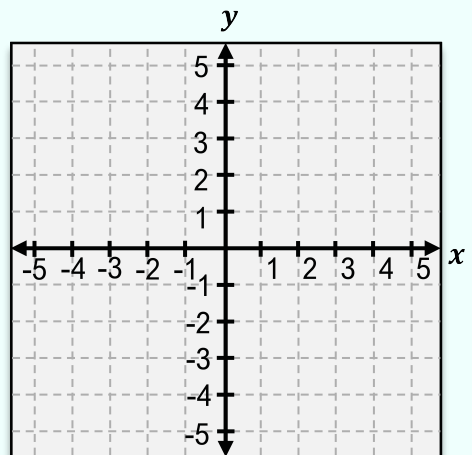
(A) $\left(-\frac{25}{2}, 47\right)$

(B) $(248, -321)$

EXAMPLE

Plot the following points in the cartesian plane below.

$(3, 4)$ $(-4, 2)$ $(-3, -5)$ $(5, -2)$



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Graphing Two Variable Equations by Plotting Points

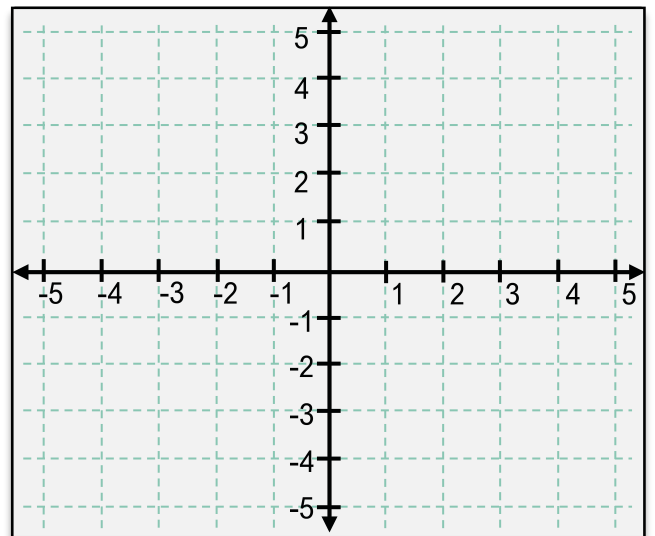
◆ To graph an equation, calculate & plot _____ that make the equation true.

EXAMPLE: Graph the equation $-2x + y = -1$ by creating ordered pairs using $x = -2, -1, 0, 1, 2$.

x		y	Ordered Pair (x, y)
-2			
-1			
0			
1			
2			

GRAPHING BY PLOTTING POINTS

- 1) Isolate y to the left side: $y = \dots$
- 2) Calculate y -values from 3-5 chosen x -values
- 3) Plot (x, y) points from Step 2
- 4) Connect points with line/curve



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PRACTICE: Graph the equation $y - x^2 + 3 = 0$ by choosing points that satisfy the equation.

x		y	Ordered Pair (x, y)

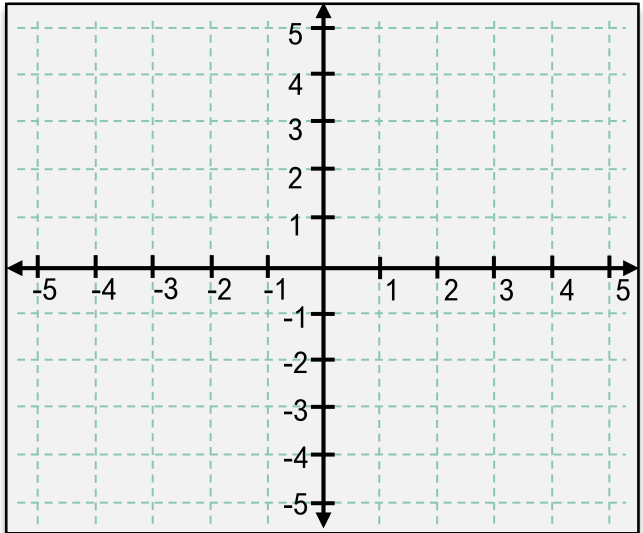
GRAPHING BY PLOTTING POINTS

1) Isolate y to the left side: $y = \dots$

2) Calculate y -values from 3-5 chosen x -values

3) Plot (x, y) points from Step 2

4) Connect points with line/curve



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PRACTICE: Graph the equation $y = \sqrt{x} + 1$ by choosing points that satisfy the equation. (*Hint: Choose positive numbers only*)

x		y	Ordered Pair

GRAPHING BY PLOTTING POINTS

- 1) Isolate y to the left side: $y = \dots$
- 2) Calculate y -values from 3-5 chosen x -values
- 3) Plot (x, y) points from Step 2
- 4) Connect points with line/curve

