

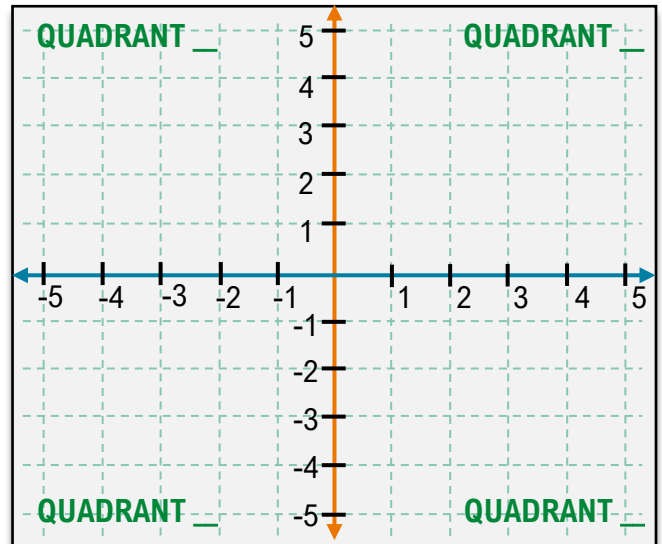
TOPIC: BASICS OF GRAPHING

Introduction to Graphs & the Coordinate System

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

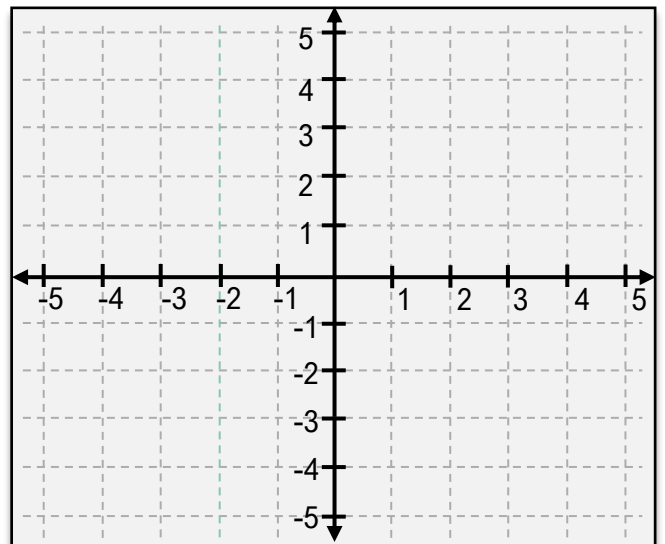
Rectangular Coordinate System (“Cartesian Plane”): 2 perpendicular _____ form a 2-D plane.

- 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 [+ | -] [ABOVE | BELOW] 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.

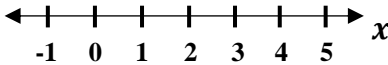
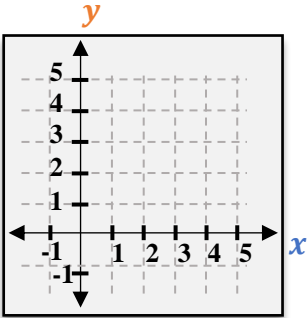
EXAMPLE: Graph the points $W(1, -2)$, $X(5, 2)$, $Y(-3, -4)$, $Z(-4, 3)$. Identify the **quadrant** of each point.



TOPIC: BASICS OF GRAPHING

Two Variable Equations

- Instead of just ONE variable, many equations in this course will involve TWO variables: ____ & ____

Equations with ONE Variable	Equations with TWO Variables
$x + 2 = 5$ $x = 3$  Solution: _____ point (x) on a 1D line	$x + y = 5$ $x = ?$ $y = ?$  Solution(s): _____ points _____ on a 2D plane

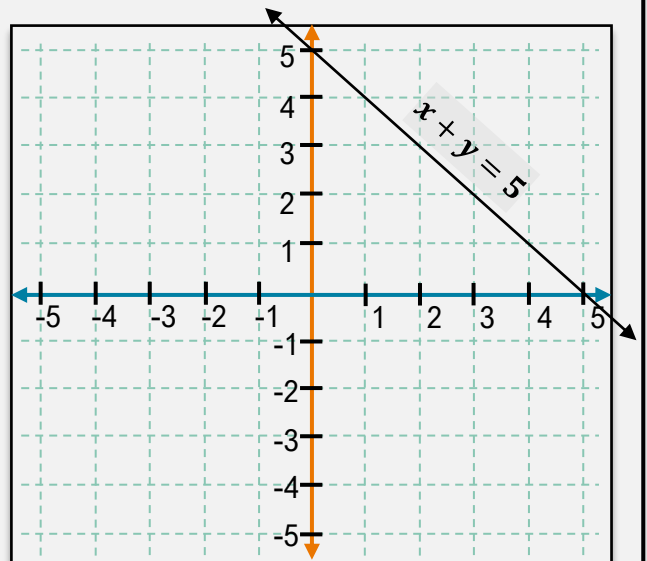
- If asked to determine if points (x, y) “satisfy” an equation, _____ x & y values to check if equation is true.

- The **graph** of an equation is just a visual representation of all (x, y) which make equation true.

When points **DO** satisfy an equation, they [**ARE | ARE NOT**] on the graph of that equation.

When points **DO NOT** satisfy an equation, they [**ARE | ARE NOT**] on the graph of that equation.

EXAMPLE: The graph of the equation $x + y = 5$ is a line, as shown in the diagram below. **a)** Determine if the points $(3, 2)$, $(4, 1)$, $(0, 0)$, & $(-1, 3)$ satisfy the equation. **b)** Plot each of the points on the graph.



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Graphing Two Variable Equations by Plotting Points

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

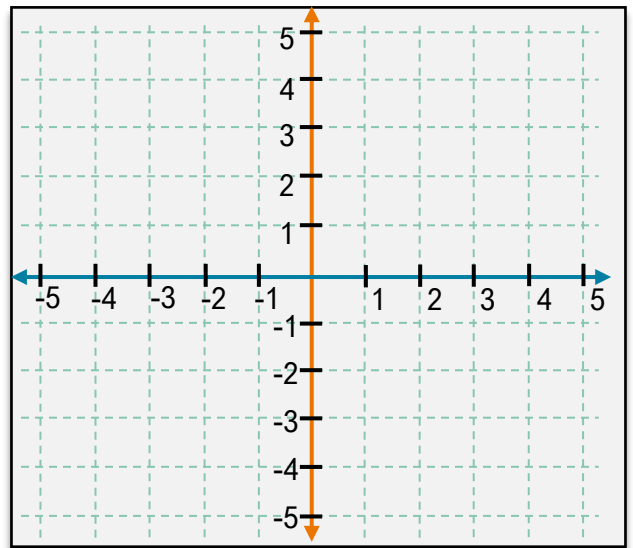
EXAMPLE: Graph the equation $-2x + y = -1$ by creating ordered pairs using $x = -2, -1, 0, 1, 2$.

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

- If you're not *given* x -values to evaluate, choose your own!

GRAPHING BY PLOTTING POINTS

- 1) Isolate y to 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)

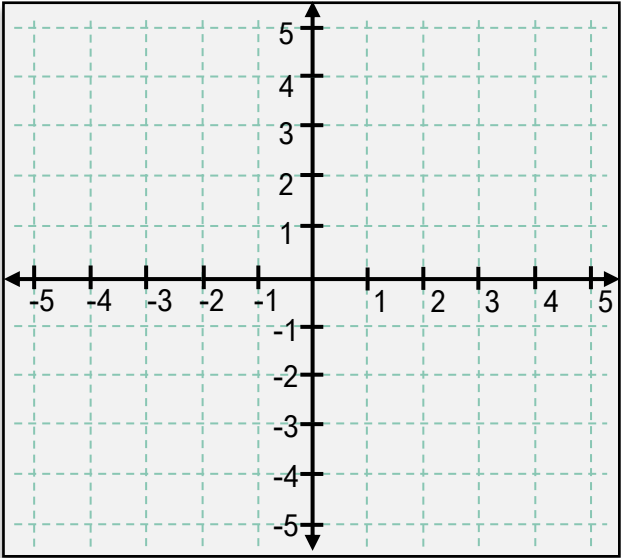
GRAPHING BY PLOTTING POINTS

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

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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

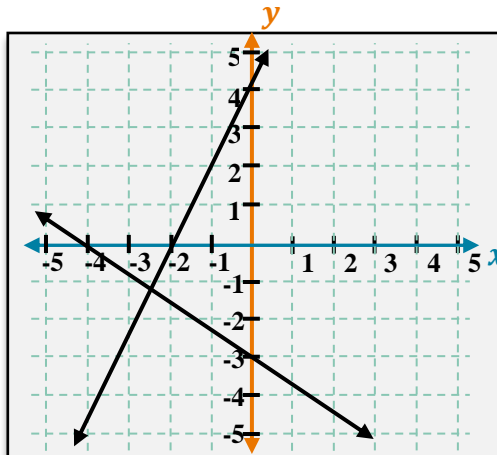
- 1) Isolate y to left side: $y = \dots$
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TOPIC: BASICS OF GRAPHING

Graphing Intercepts

INTERCEPTS: Ordered pairs/point(s) where graph crosses x or y axis

x – intercept



y – intercept

x – Intercept

x – intercept: x value when graph crosses $[x | y]$ axis

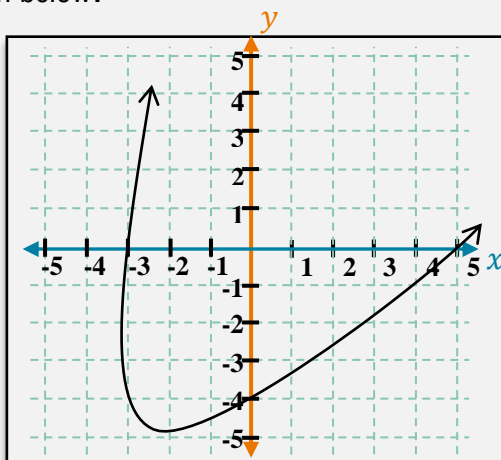
$[x | y]$ value is ALWAYS zero

y – Intercept

y – intercept: y value when graph crosses $[x | y]$ axis

$[x | y]$ value is ALWAYS zero

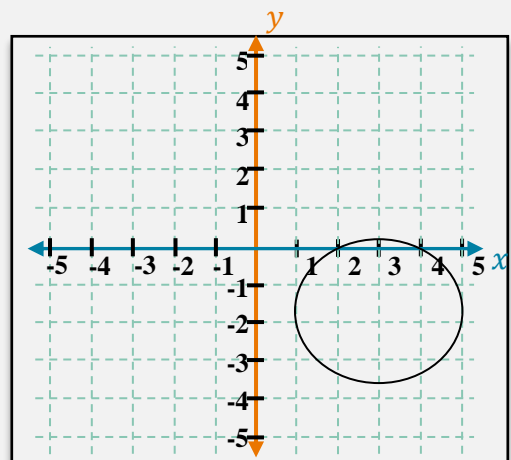
EXAMPLE: Write the x -intercepts & y -intercepts of the graph below.



x – intercept: _____

y – intercept: _____

EXAMPLE: Find the intercepts of the graph below.



Intercepts: _____

- If asked for “ x - or y -intercept”, simply write the x or y -value. If asked for just “intercepts”, write the ordered pairs.