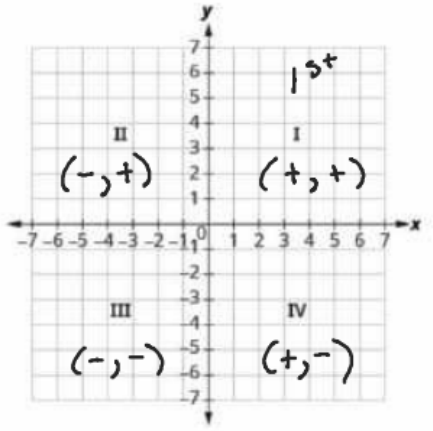
What you will learn about:
Use the Rectangular Coordinate System

Coordinate Grid

Rectangular Coordinate Grid



Ordered Pair

(x, y)

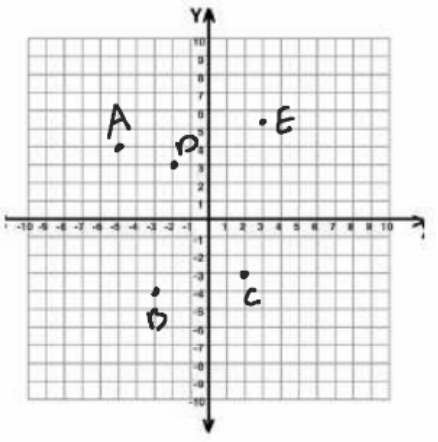
x → Left/Right

y → up/Down

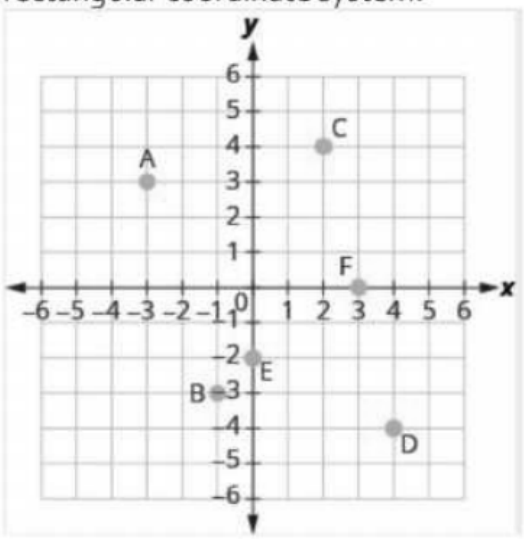
Plot each point in the rectangular coordinate system and identify the quadrant in which the point is located:

ⓐ (−5,4) ⓑ (−3,−4) ⓒ (2,−3) ⓓ (−2,3) ⓔ (3,52).

II III IV III I



Name the ordered pair of each point shown in the rectangular coordinate system.



A (-3, 3) QII

B (-1, -3) III

C (2, 4) I

D (4, -4) IV

E (0, -2) None

F (3, 0) None

A, B, C → Integers

Standard Form (No fractions)

$Ax + By = C$

Slope-Intercept Form

$y = mx + b$

m - slope

b - y-intercept

Determine which ordered pairs are solutions to the equation

x+4y=8 (solutions makes equations true)

a) (0, 2)

$0+4(2) \stackrel{?}{=} 8$

$8 = 8$

Yes

b) (2, -4)

$2+4(-4) \stackrel{?}{=} 8$

$-14 \neq 8$

No

c) (-4, 3)

$-4+4(3) \stackrel{?}{=} 8$

$-4+12 \stackrel{?}{=} 8$

$8 = 8$

Yes

Complete the table to find three solutions to the equation

$y = 4x - 2$

$y = 4x - 2$		
X	Y	(x, y)
0	-2	(0, -2)
-1	-6	(-1, -6)
2	6	(2, 6)

4(2)-2

$3(0)-4y=12$

$-4y=12$

$y=-3$

Complete the table to find three solutions to this equation: $3x-4y=12$.

$3x-4y=12$		
X	Y	(x, y)
0	-3	(0,-3)
4	0	(4,0)
-4	-6	(-4,-6)

$3x-4(0)=12$ $\quad 3(-4)-4y=12$

$3x=12$ $\quad -12-4y=12$

$x=4$ $\quad -4y=24$

$y=-6$

Find three solutions to this equation $y=-3x+2$.

x	y
-1	$-3(-1)+2=5$ $\quad (-1,5)$
0	(0,2)
1	(1,-1)

Find three solutions to this equation $4x+2y=8$.

(0, 4) $\quad 4(0)+2y=8$

$4x+2(0)=8$

(2,0)

(1, 2) $\quad 4(1)+2y=8$

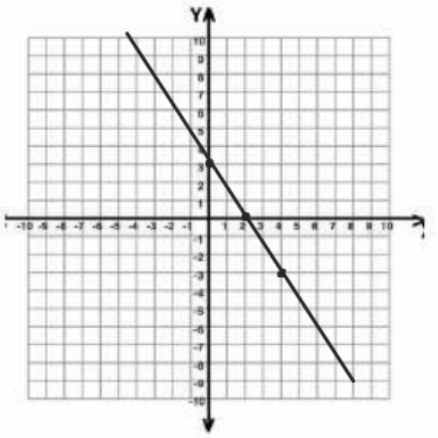
$4+2y=8$

What you will learn about:
Graph Linear Equations in Two Variables

Find three solutions to the equation: $3x + 2y = 6$

(0,3) (2,0) (4,-3)

Graph the solutions on a coordinate grid.

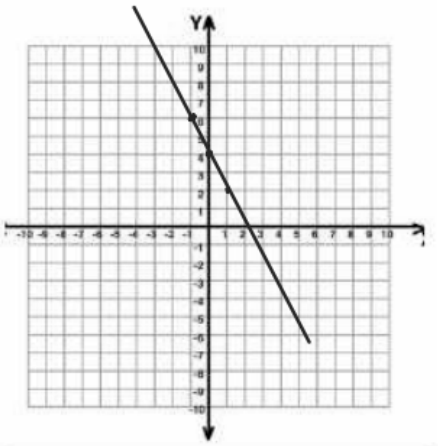


Draw a line through the points.

Graph the equation by plotting points:

$y = -2x + 4$

x	y
-1	6
0	4
1	2



$\frac{1}{4}(-4)+2$

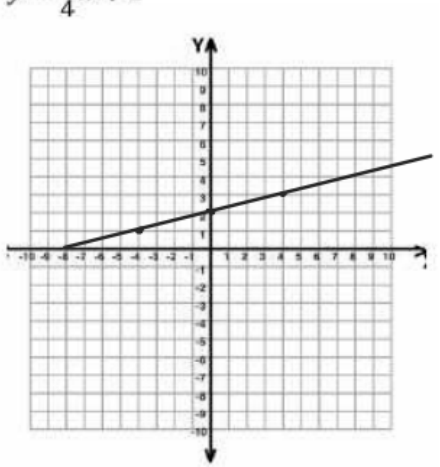
$-1+2$

$\frac{1}{4}(4)+2$

$1+2$

Graph the equation by plotting points:

$y = \frac{1}{4}x + 2$

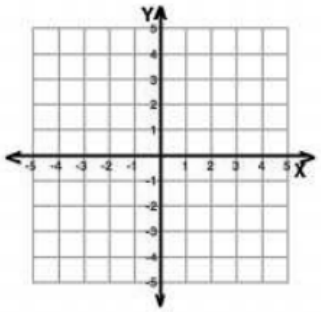


X	Y
-4	1
0	2
4	3

Vertical Line

Graph the equation by plotting points:

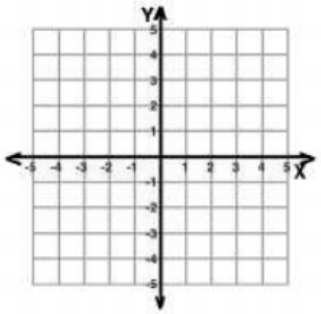
X=3



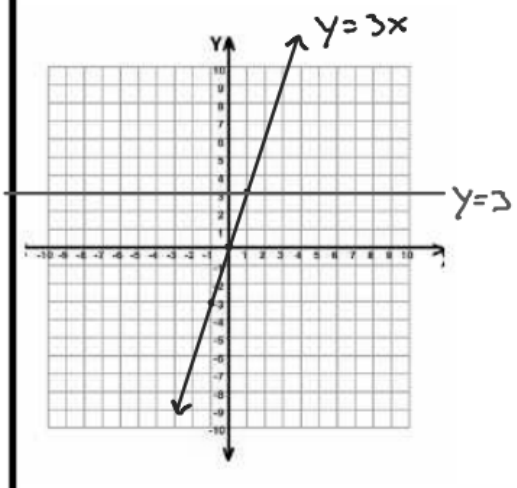
Graph the equation by plotting points:

y=-2

Horizontal Line



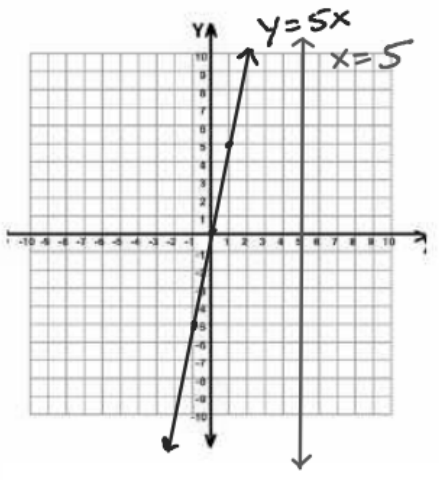
Graph $y = 3x$ *and* $y = 3$ on the same rectangular coordinate system



x	3x	
-1	-3	(-1,-3)
0	0	(0,0)
1	3	(1,3)

x	y
-1	3
0	3
1	3

Graph $y = 5x$ *and* $x = 5$ on the same rectangular coordinate system



x	y	
-1	-5	(-1,-5)
0	0	(0,0)
1	5	(1,5)

x	y
5	-1
5	0
5	1

What you will learn about:
Graph with Intercepts

Intercepts of a graph

X-intercept → Where the Graph Crosses x-axis (a,0)

Y-intercept → Where the graph Crosses y-axis (0,b)

Standard form → Graph using intercepts
$Ax + By = C$

Finding the x and y intercepts of the graph

Finding x-intercept
Let y = 0 and solve for x

Find the intercepts of $2x + y = 6$

x-intercept
$2x + 0 = 6$
$x = 3$
(3,0)

y-intercept
$2(0) + y = 6$
$y = 6$
(0,6)

Finding y-intercept
Let x = 0 and solve for y

Find the intercepts of $3x + 6y = 24$

x-intercept
(8,0)

y-intercept
(0,4)

Find the intercepts of $4x - 3y = 12$

x-intercept
(3,0)

y-intercept
(0,-4)

Graph using the intercepts
$-x + 2y = 6$