

What you will learn about:
Use the Rectangular Coordinate System

Coordinate Grid

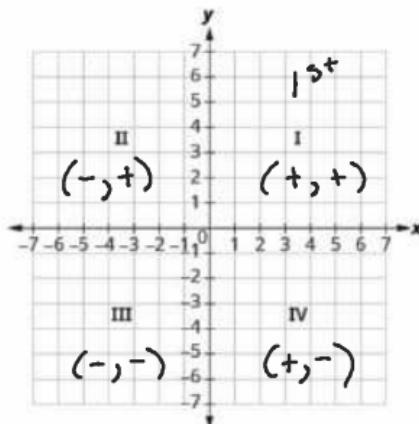
Ordered Pair

(x, y)

$x \rightarrow$ Left/Right

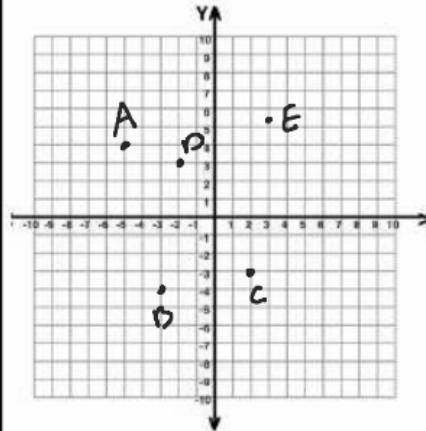
$y \rightarrow$ Up/Down

Rectangular Coordinate Grid

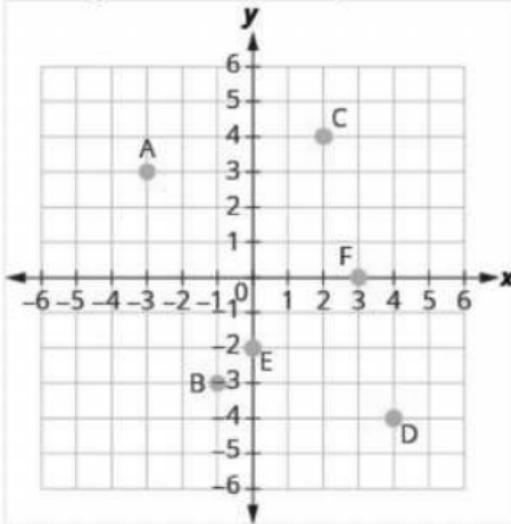


Plot each point in the rectangular coordinate system and identify the quadrant in which the point is located:

- Ⓐ $(-5, 4)$ Ⓑ $(-3, -4)$ Ⓒ $(2, -3)$ Ⓓ $(-2, 3)$ Ⓔ $(3, 5)$.
- Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ



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



A $(-3, 3)$ Q II

B $(-1, -3)$ III

C $(2, 4)$ I

D $(4, -4)$ IV

E $(0, -2)$ None

F $(3, 0)$ None

$A, B, C \rightarrow$ 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

$$x + 4y = 8$$

a) $(0, 2)$

b) $(2, -4)$

c) $(-4, 3)$

d) $(-1, 6)$

e) $(6, -1)$

f) $(-2, 5)$

g) $(5, -2)$

h) $(-3, 4)$

i) $(4, -3)$

j) $(-5, 1)$

k) $(1, -5)$

l) $(-6, 2)$

m) $(2, 0)$

n) $(0, 2)$

o) $(-2, 0)$

p) $(0, -2)$

q) $(-4, 0)$

r) $(0, 4)$

s) $(4, 0)$

t) $(-2, 2)$

u) $(2, -2)$

v) $(-4, -2)$

w) $(2, 4)$

x) $(-2, -4)$

y) $(4, -2)$

z) $(-4, 4)$

aa) $(4, 4)$

bb) $(-3, 3)$

cc) $(3, -3)$

dd) $(-2, -3)$

ee) $(2, 3)$

ff) $(-1, 1)$

gg) $(1, -1)$

hh) $(-3, 1)$

ii) $(3, -1)$

jj) $(-1, -1)$

kk) $(1, 1)$

ll) $(-2, 1)$

mm) $(2, -1)$

nn) $(-1, 2)$

oo) $(1, -2)$

pp) $(-2, 2)$

qq) $(2, -2)$

rr) $(-1, 1)$

ss) $(1, -1)$

tt) $(-2, -1)$

uu) $(2, 1)$

vv) $(-1, -2)$

ww) $(1, 2)$

xx) $(-2, 1)$

yy) $(2, -1)$

zz) $(-1, 1)$

aa) $(1, -1)$

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pp) $(2, -2)$

qq) $(-1, 1)$

rr) $(1, -1)$

$$\begin{aligned}
 3(0) - 4y &= 12 \\
 -4y &= 12 \\
 y &= -3
 \end{aligned}$$

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

x	y	(x, y)
0	-3	(0, -3)
4	0	(4, 0)
-4	-6	(-4, -6)

$$\begin{aligned}
 3x - 4(0) &= 12 & 3(-4) - 4y &= 12 \\
 3x &= 12 & -12 - 4y &= 12 \\
 x &= 4 & -4y &= 24 \\
 && y &= -6
 \end{aligned}$$

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

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

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

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

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

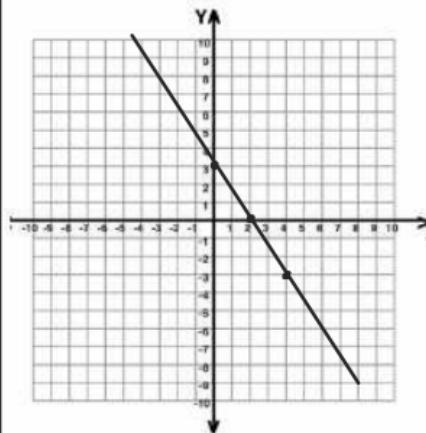
$$(1, 2) \quad 4(1) + 2y = 8 \\ 4 + 2y = 8$$

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)

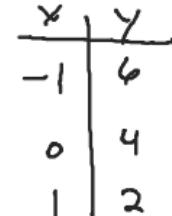
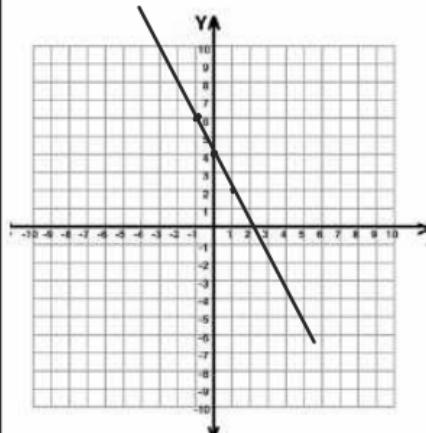
Graph the solutions on a coordinate grid.



Draw a line through the points.

Graph the equation by plotting points:

$$y = -2x + 4$$

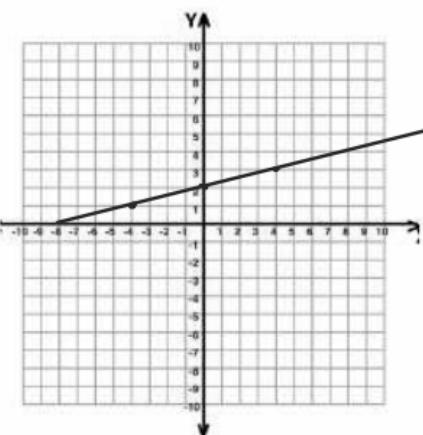


$$\frac{1}{4}(-4) + 2$$
$$-1 + 2$$

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

Graph the equation by plotting points:

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

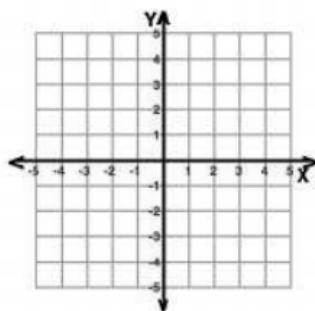


X	Y
-4	1
0	2
4	3

Vertical Line

Graph the equation by plotting points:

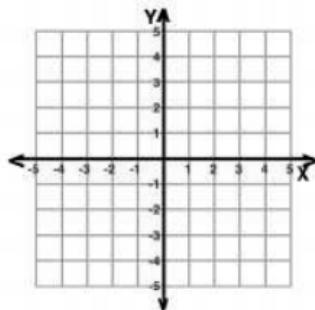
$$X=3$$



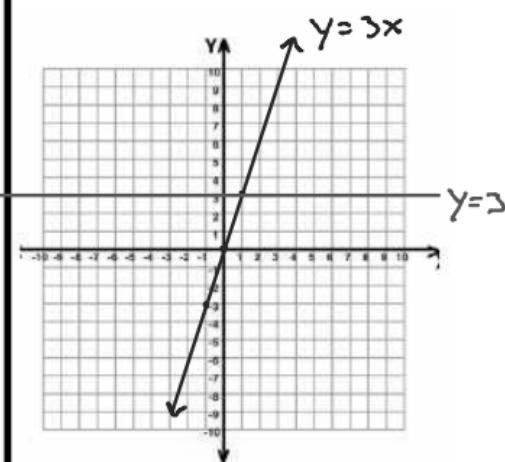
Horizontal Line

Graph the equation by plotting points:

$$y=-2$$



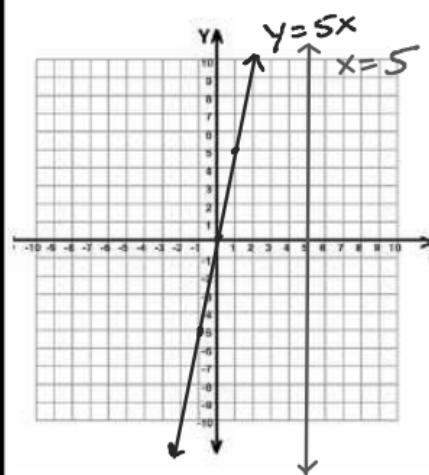
Graph $y = 3x$ and $y = 3$ on the same rectangular coordinate system



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 \rightarrow Where the Graph Crosses x-axis

$(a, 0)$

Y-intercept \rightarrow Where the graph crosses y-axis

$(0, b)$

Standard form

$$Ax + By = C$$

Graph using intercepts

Finding x-intercept

Let $y = 0$ and solve for x

Finding the x and y intercepts of the graph

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

X-intercept

$$2x + 0 = 6$$

$$x = 3$$

$(3, 0)$

Y-intercept

$$2(0) + y = 6$$

$$y = 6$$

$(0, 6)$

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

X-intercept

$(8, 0)$

Y-intercept

$(0, 4)$

Finding y-intercept

Let $x = 0$ and solve for y

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

X-intercept

$(3, 0)$

Y-intercept

$(0, -4)$

Graph using the intercepts

$$-x + 2y = 6$$

