Graphing Linear Equations – Introduction   MrB4math.com
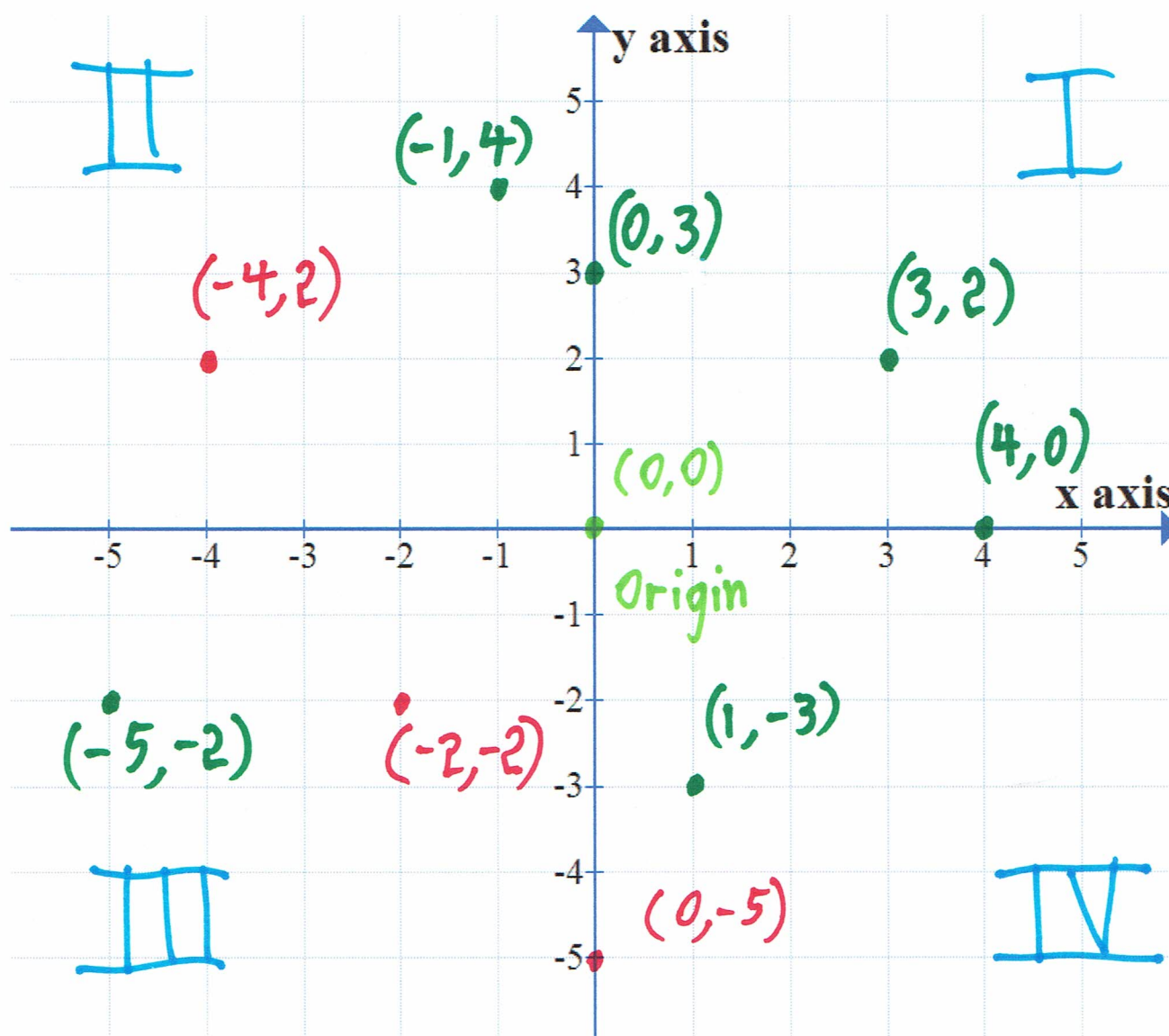
Identify the axes.

Identify the quadrants.

Identify the origin, (0,0).

Graph the ordered pairs:

x y

(3, 2), (-1,4), (-5, -2), (1,-3), (0,3), (4,0).

Create an "x, y table" of solutions and graph the equation:

$$3x + 2y = 12$$

$3x + 2y = 12$

$3x + 2 \cdot 0 = 12$

$\dfrac{3x}{3} = \dfrac{12}{3}$

$x = 4$

$3x + 2y = 12$

$3 \cdot 0 + 2y = 12$

$\dfrac{2y}{2} = \dfrac{12}{2}$

$y = 6$

$3x + 2y = 12$

$3 \cdot 2 + 2y = 12$

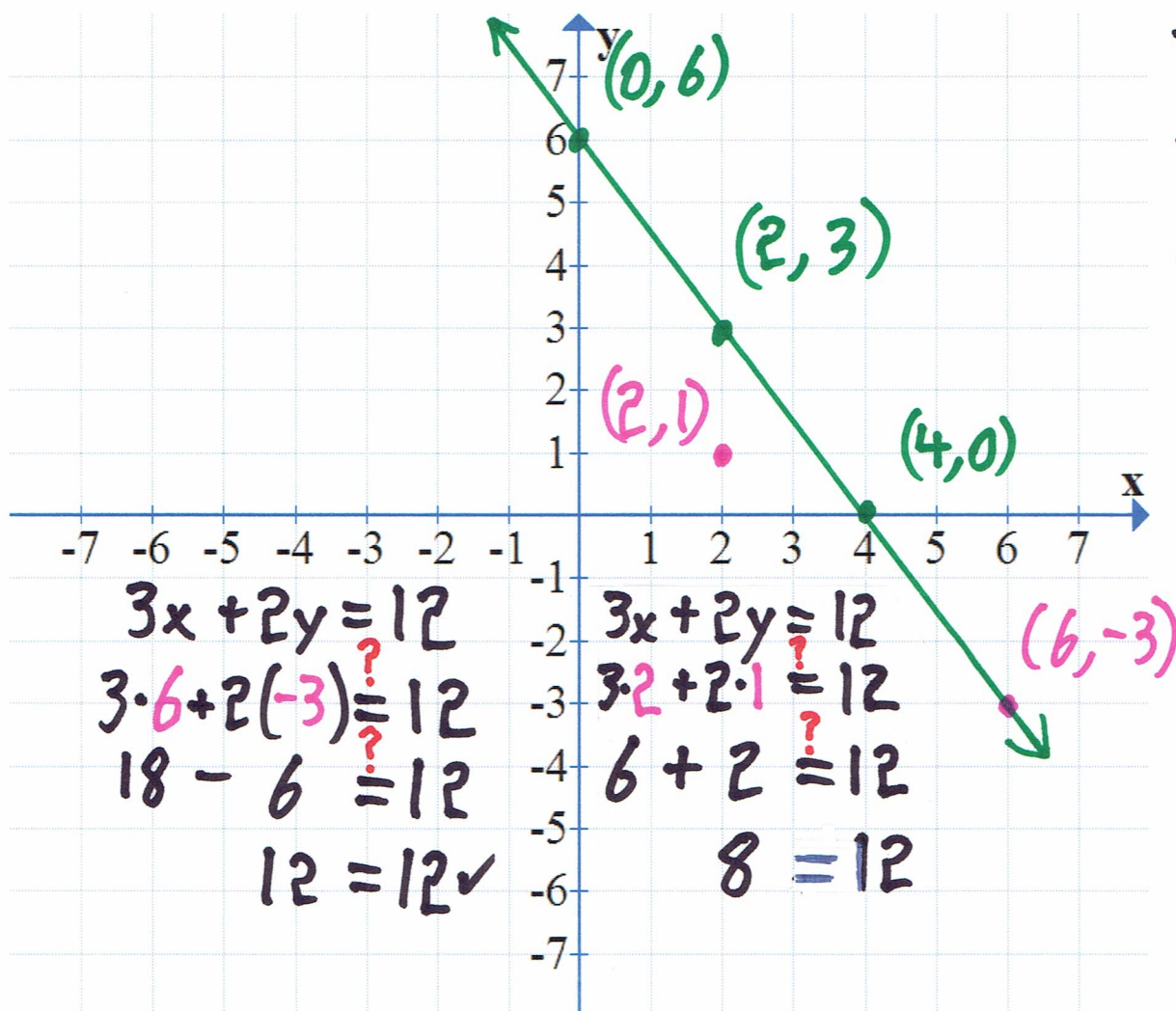$6 + 2y = 12$

$\quad -6 \qquad\quad -6$

$\dfrac{2y}{2} = \dfrac{6}{2}$

$y = 3$

X	Y
4	0
0	6
2	3

(0,6)
(2,3)
(2,1)
(4,0)
(6,-3)

$3x + 2y = 12$

$3 \cdot 6 + 2(-3) \overset{?}{=} 12$

$18 - 6 \overset{?}{=} 12$

$12 = 12 \checkmark$

$3x + 2y = 12$

$3 \cdot 2 + 2 \cdot 1 \overset{?}{=} 12$

$6 + 2 \overset{?}{=} 12$

$8 = 12$

Create an "x, y table" of solutions and graph the equation:

$$2x - 4y = 20$$

$2x - 4y = 20$
$2x - 4 \cdot 0 = 20$
$\dfrac{2x}{2} = \dfrac{20}{2}$
$x = 10$

$2x - 4y = 20$
$2 \cdot 0 - 4y = 20$
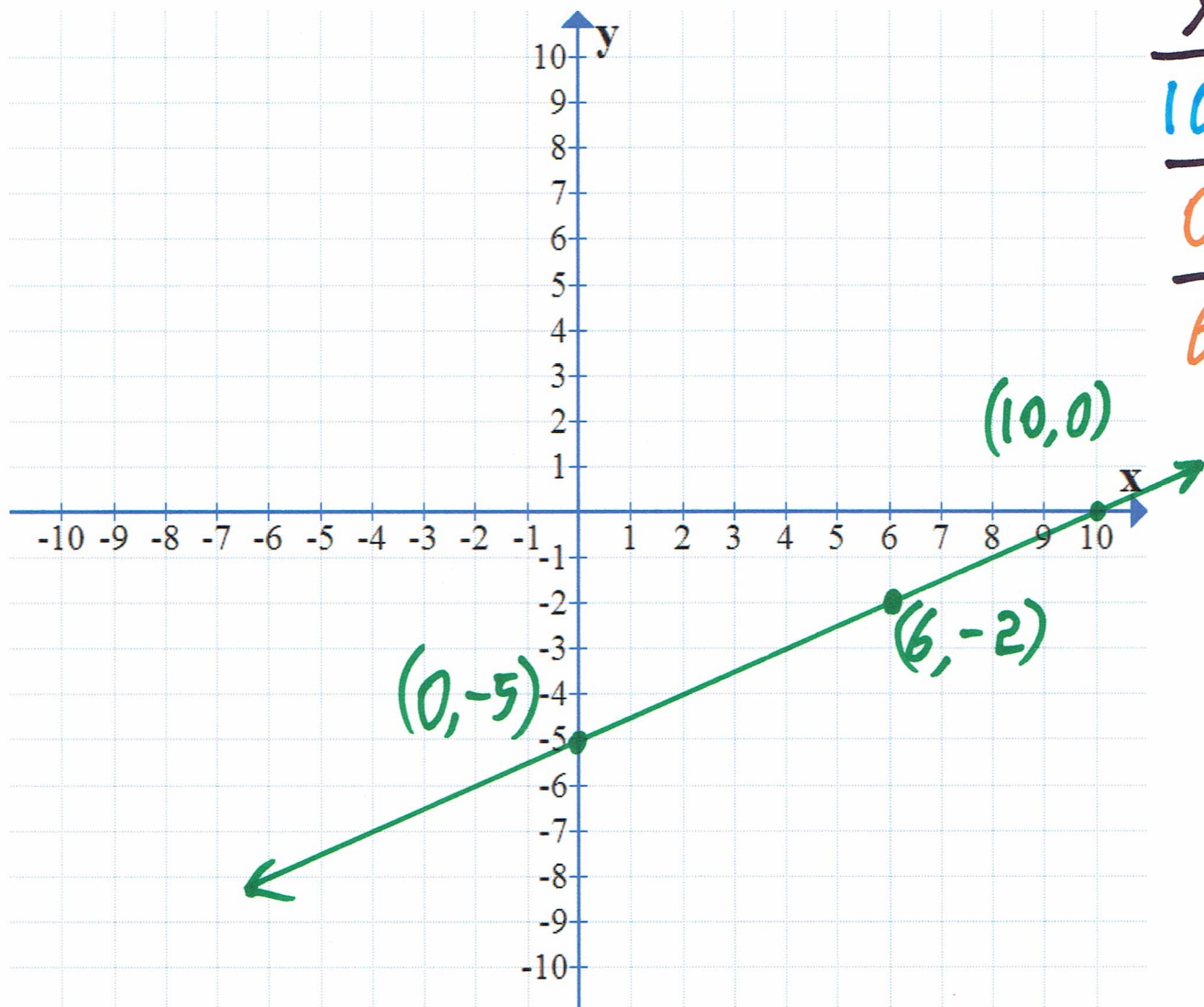$\dfrac{-4y}{-4} = \dfrac{20}{-4}$
$y = -5$

$2x - 4y = 20$
$2 \cdot 6 - 4y = 20$
$12 - 4y = 20$
$-12 \qquad -12$
$\dfrac{-4y}{-4} = \dfrac{8}{-4}$
$y = -2$

X	Y
10	0
0	-5
6	-2

(10,0)

(6,-2)

(0,-5)

Create an "x, y table" of solutions, including x and y intercepts, and graph the equation:

$$y = 2x - 6$$

$$y = 2x - 6$$
$$0 = 2x - 6$$
$$\underline{+6 \qquad +6}$$
$$\frac{6}{2} = \frac{2x}{2}$$
$$3 = x$$

$$y = 2x - 6$$
$$y = 2 \cdot 0 - 6$$
$$y = -6$$

$$y = 2x - 6$$
$$y = 2 \cdot 1 - 6$$
$$y = 2 - 6$$
$$y = -4$$

X	Y
3	0
0	-6
1	-4

(3,0)

(1,-4)

(0,-6)
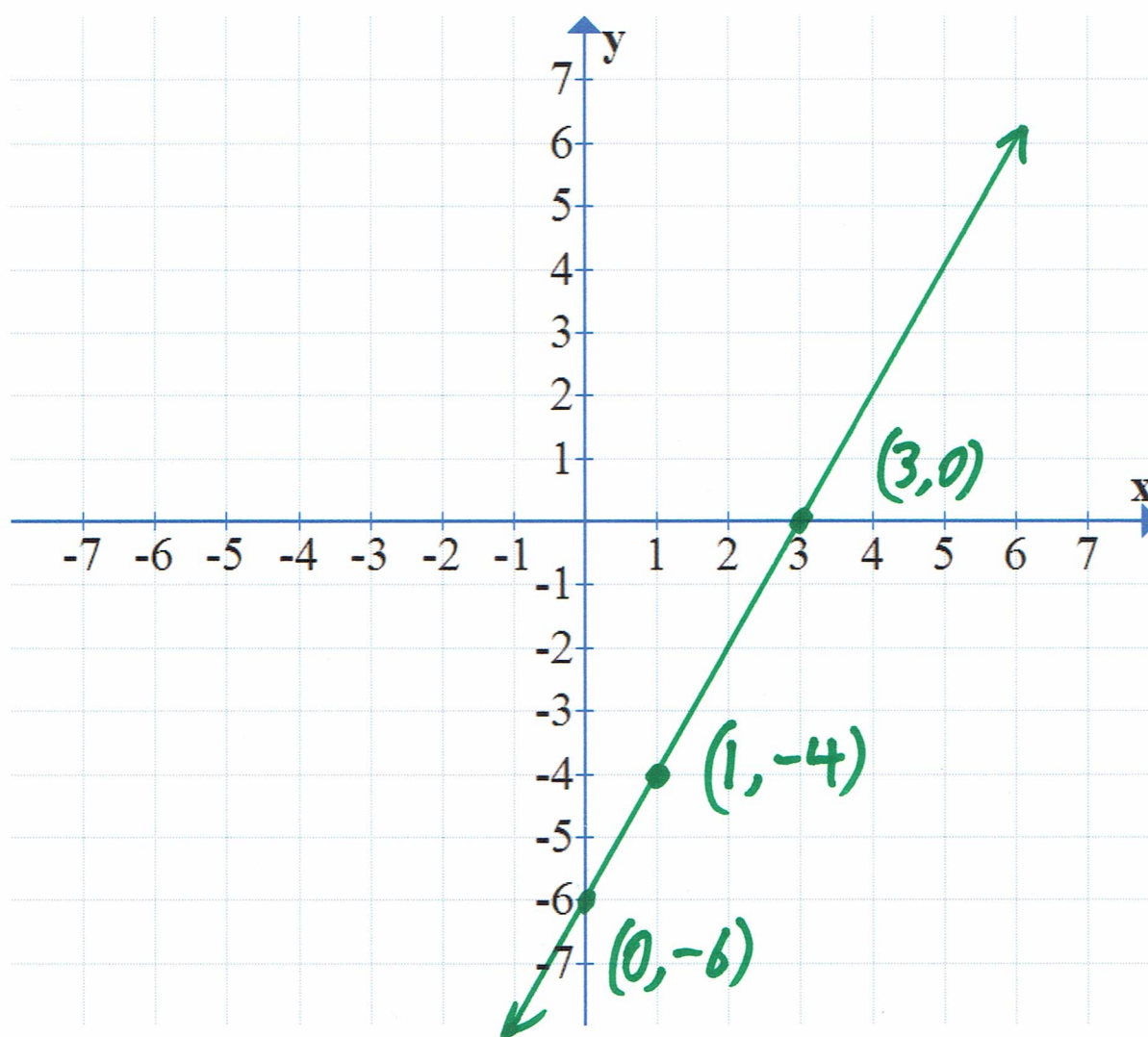
Create an "x, y table" of solutions, including x and y intercepts, and graph the equation:

$$5x - y = 0$$

$5x - y = 0$

$5x - 0 = 0$

$\dfrac{5x}{5} = \dfrac{0}{5}$

$x = 0$

$5x - y = 0$

$5 \cdot 0 - y = 0$

$\dfrac{-y}{-1} = \dfrac{0}{-1}$

$y = 0$

$5x - y = 0$

$5 \cdot 1 - y = 0$

$5 - y = 0$
$-5 \qquad -5$

$\dfrac{-y}{-1} = \dfrac{-5}{-1}$

$y = 5$

$5x - y = 0$

$5(-1) - y = 0$

$-5 - y = 0$
$+5 \qquad\quad +5$

$\dfrac{-y}{-1} = \dfrac{5}{-1}$

$y = -5$

X	Y
0	0
0	0
1	5
-1	-5

x-intercept (0,0)

y-intercept (0,0)