

Part I: Linear Equations and Inequalities in Two Variables

1. Is $(2, 3)$ a solution of $y = \frac{1}{2}x + 2$? **Yes.**

Solution:

$$3 = \frac{1}{2}(2) + 2$$

$$3 = (2/2) + 2$$

$$3 = 1 + 2$$

$$3 = 3$$

Alternate Solution:

$$0 = \frac{1}{2}(x) + 2 - y$$

$$0 = \frac{1}{2}(2) + 2 - 3$$

$$0 = (2/2) + 2 - 3$$

$$0 = 1 + 2 - 3$$

$$0 = 3 - 3$$

$$0 = 0$$

2. Find the ordered pair solution of $y = \frac{2}{3}x + 3$ corresponding to $x = -5$.

Solution:

$$Y = \square(-5) + 3$$

$$Y = (-10/3) + 3$$

$$Y = (-10/3) + (3/1)$$

$$Y = (-10/3) + (9/3)$$

$$Y = -1/3$$

Answer: $(-5, -1/3)$

3. Find the ordered pair solution of $y = -2x + 5$ corresponding to $x = \frac{1}{3}$.

Solution:

$$Y = -2(\square) + 5$$

$$Y = (-2/3) + 5$$

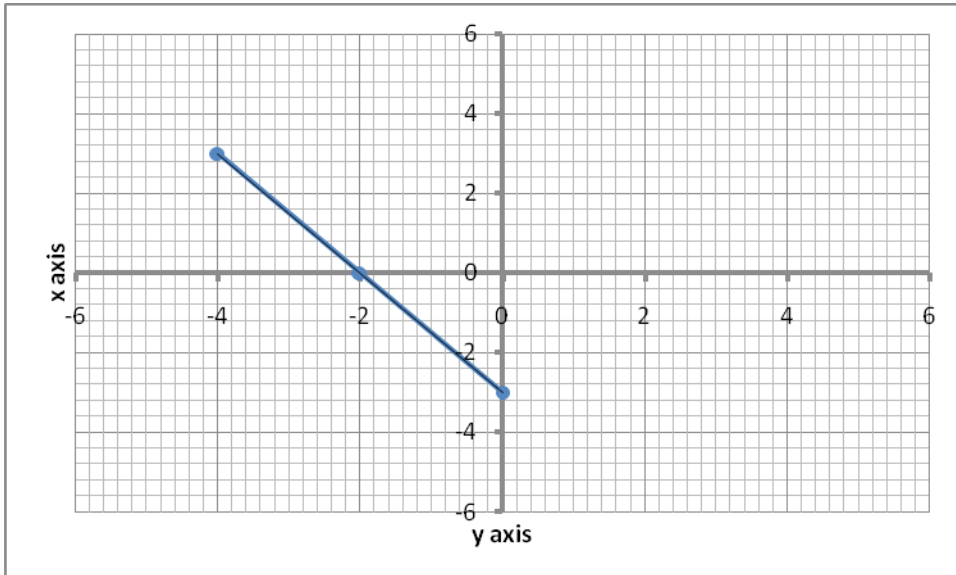
$$Y = (-2/3) + (5/1)$$

$$Y = (-2/3) + (15/3)$$

$$Y = 13/3$$

Answer: $(1/3, 13/3)$

4. Graph $y = -\frac{3}{2}x - 3$ by calculating the y values when $x=0, -2$ and -4 , and then plotting the points.



If $x=0$,

$$Y = -(3/2)(0) - 3$$

$$Y = 0 - 3$$

$$Y = -3$$

$$(0, -3)$$

$$\text{If } x = -2$$

$$y = -(3/2)(-2) - 3$$

$$y = (6/2) - 3$$

$$y = 3 - 3$$

$$y = 0$$

$$(-2, 0)$$

$$\text{If } x = -4$$

$$Y = -(3/2)(-4) - 3$$

$$Y = (12/2) - 3$$

$$Y = 6 - 3$$

$$Y = 3$$

$$(-4, 3)$$