

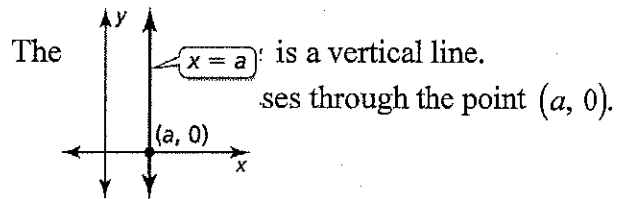
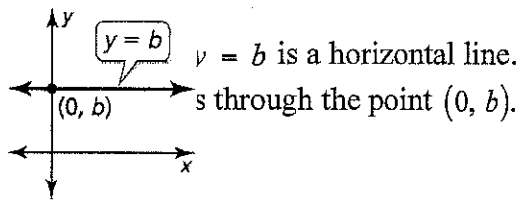
3.4 Graphing Linear Equations in Standard Form

standard form $Ax + By = C$

x-intercept the x -coordinate of a point where the graph crosses the x -axis

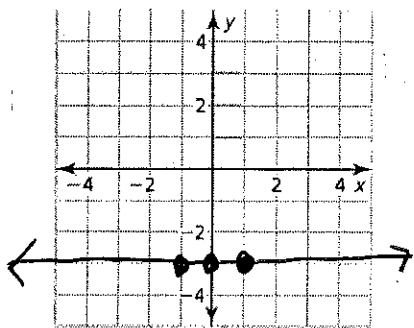
y-intercept the y -coordinate of a point where the graph crosses the y -axis

Horizontal and Vertical Lines



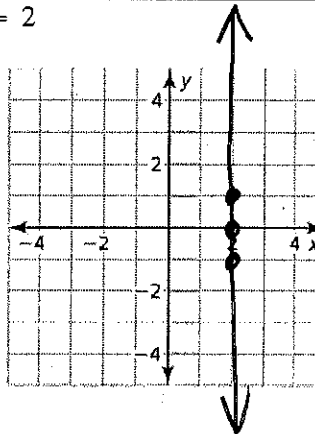
Graph the linear equation.

1. $y = -3$



x	y
-1	-3
0	-3
1	-3

2. $x = 2$



x	y
2	-1
2	0
2	1

Find the x - and y -intercepts of the graph of the linear equation.

3. $3x + 4y = 12$

x -int
(let $y=0$)

$$3x + 4(0) = 12$$

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

$$x = 4$$

$(4, 0)$

y -int
(let $x=0$)

$$3(0) + 4y = 12$$

$$\frac{4y}{4} = \frac{12}{4}$$

$$y = 3$$

$(0, 3)$

4. $5x - 2y = -30$

x -int
(let $y=0$)

$$5x - 2(0) = -30$$

$$\frac{5x}{5} = \frac{-30}{5}$$

$$x = -6$$

$(-6, 0)$

y -int
(let $x=0$)

$$5(0) - 2y = -30$$

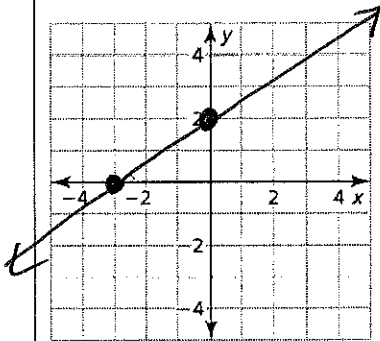
$$\frac{-2y}{-2} = \frac{-30}{-2}$$

$$y = 15$$

$(0, 15)$

Use intercepts to graph the linear equation. Label the points corresponding to the intercepts.

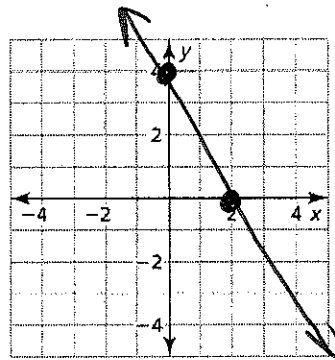
6. $-8x + 12y = 24$



x-int
 $-8x + 12(0) = 24$
 $-8x = \frac{24}{-8}$
 $x = -3$
 $(-3, 0)$

y-int
 $-8(0) + 12y = 24$
 $\frac{12y}{12} = \frac{24}{12}$
 $y = 2$
 $(0, 2)$

7. $2x + y = 4$



x-int
 $2x + 0 = 4$
 $\frac{2x}{2} = \frac{4}{2}$
 $x = 2$
 $(2, 0)$

y-int
 $2(0) + y = 4$
 $y = 4$
 $(0, 4)$

8. The school band is selling sweatshirts and baseball caps to raise \$9000 to attend a band competition. Sweatshirts cost \$25 each and baseball caps cost \$10 each. The equation $25x + 10y = 9000$ models this situation, where x is the number of sweatshirts sold and y is the number of baseball caps sold.

a. Find and interpret the intercepts.

x-int: $\frac{25x}{25} + \frac{10(0)}{10} = \frac{9000}{25}$

$x = 360$ $(360, 0)$

y-int: $25(0) + \frac{10y}{10} = \frac{9000}{10}$

$y = 900$

$(0, 900)$

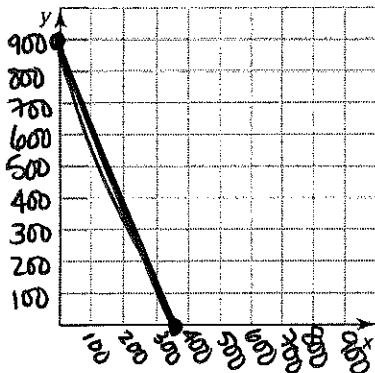
b. If 258 sweatshirts are sold, how many baseball caps are sold?

$25(258) + 10y = 9000$
 $6450 + 10y = 9000$
 $\frac{-6450}{-6450} \quad \frac{-6450}{-6450}$
 $10y = 2550$

$\frac{10y}{10} = \frac{2550}{10}$

$y = 255$ caps

c. Graph the equation. Find two more possible solutions in the context of the problem.



2 other solutions:

$(100, 650)$

$(200, 400)$