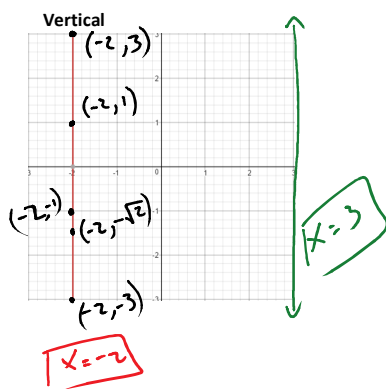
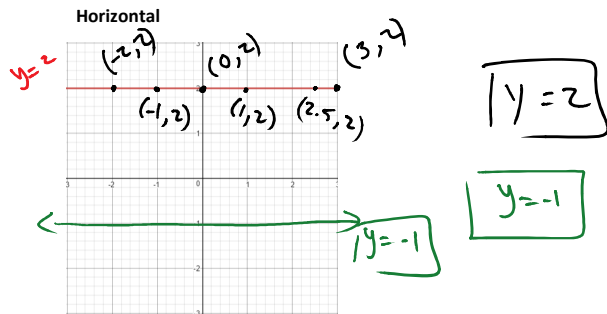


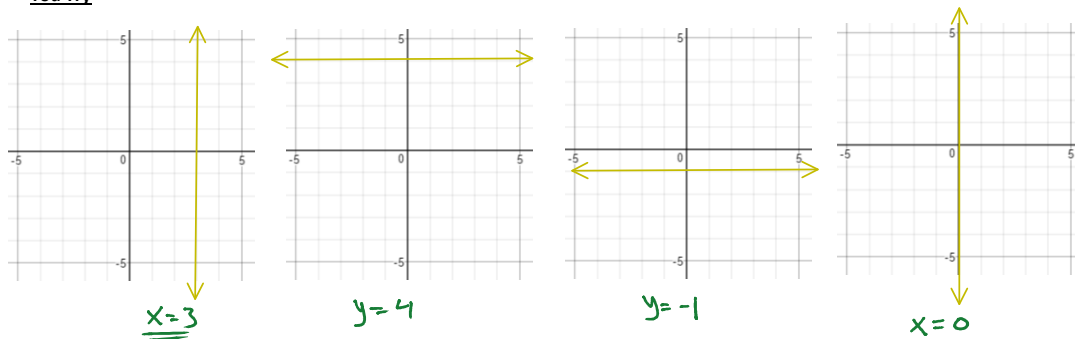
Special Lines and General Form

May 16, 2017 9:37 AM

We have two types of lines that are special. Horizontal and Vertical Lines



You Try



General Form

Another way of writing a linear equation is in general form. This form is used to write all equations and can sometimes help us figure out what type of relation we are working with. (For the most part it is useless though)

$$Ax + By + C = 0$$

- Three terms
: x , y , constant
- All on the left Side

Ex: $2x + 3y - 1 = 0$

$4x + 7y = 0$

★ Ideal : No fractions

--- -, - - - All on the left side

Ex: $3x + 2y - 1 = 0$
 $5y + 6 = 0$

$4x + 7y = 0$
 $-47x - 83y + 9 = 0$

★ Ideal : No fractions

Notice all the variables and numbers are on the left and are in the order of independent, dependent, constant

Changing from Slope intercept to general and back again

- isolate y or dependent Variable

Ex: Change to slope intercept form

$2x + 3y - 6 = 0$
 $\frac{-2x}{-2x} \quad \frac{-2x}{-2x}$
 $3y - 6 = -2x$
 $\frac{+6}{+6} \quad \frac{+6}{+6}$ } different terms
 $3y = -2x + 6$
 $\frac{3y}{3} = \frac{-2x + 6}{3}$
 $y = \frac{-2x}{3} + \frac{6}{3}$
 $y = \frac{-2x}{3} + 2$
 $m = -\frac{2}{3}$ $b = 2$

step 1: move your non-y terms to the right side

Change to General Form
 $y = 0.5x - 0.3$

$y = \frac{1}{2}x - \frac{3}{10}$
 $10 \times [y] \quad \left[\frac{1}{2}x - \frac{3}{10} \right] \times 10$
 $10y = 5x - 3$
 $-5x \quad -5x$
 $-5x + 10y = -3$
 $+3 \quad +3$
 $-5x + 10y + 3 = 0$

$0.3 \times \frac{10}{10} = \frac{3}{10}$

$0.25 \times \frac{100}{100} = \frac{25}{100} = \frac{1}{4}$

Graphing using General form

Method 1: Find the intercepts.

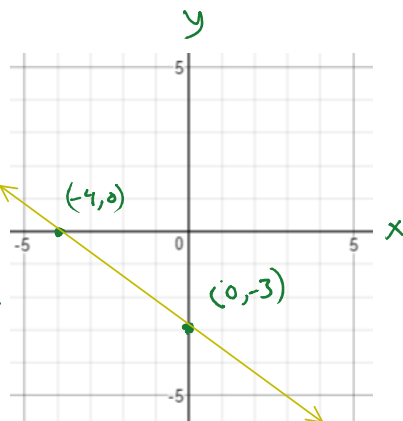
$3x + 4y + 12 = 0$

x-int: Set y=0

$3x + 4(0) + 12 = 0$
 $3x + 12 = 0$
 $-12 \quad -12$
 $\frac{3x}{3} = \frac{-12}{3}$
 $x = -4$

y-int: Set x=0

$3(0) + 4y + 12 = 0$
 $4y + 12 = 0$
 $-12 \quad -12$
 $\frac{4y}{4} = \frac{-12}{4}$
 $y = -3$



Method 2: Do some algebra to change it to slope intercept form

$3x + 4y + 12 = 0$

$-3x \quad -3x$

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



$$4y + 12 = -3x$$

$$\quad -12 \quad -12$$

$$\frac{4y}{4} = \frac{-3x - 12}{4}$$

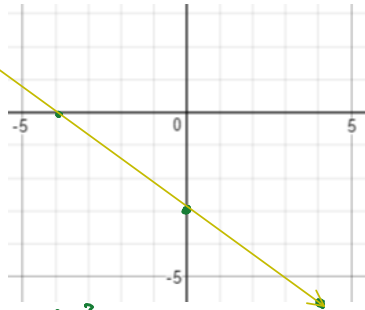
$$y = -\frac{3}{4}x - 3$$

$$m = -\frac{3}{4}$$

$$b = -3$$

down 3
right 4

or up 3
left 4



Writing an Equation from a word problem

Step 1: Identify your variables

Step 2: Find your equation(s)

Step 3: Find what you are to solve for and solve.

Ex: Luc Swims as part of an active healthy lifestyle. The number of calories burned by a swimmer of Luc's body weight is 8 calories per minute for the backstroke and 11 calories per minute for the Butterfly.

- a) Write a linear equation to describe the number of minutes Luc would need to swim backstroke and butterfly to burn 440 calories.

Step 1: $x = \text{minutes doing the backstroke}$
 $y = \text{minutes doing the butterfly}$

Step 2: $440 = 8x + 11y$

$$\begin{array}{r} -8x \quad -11y \\ -8x \quad -11y \end{array}$$

$$-8x - 11y + 440 = 0$$

Step 3: Graph

Step 3: Graph

$$-8x - 11y + 440 = 0$$

a) Graph the equation

$$-8x - 11y + 440 = 0$$

x-int: $y=0$

$$-8x - 11(0) + 440 = 0$$

$$-440 \quad -440$$

$$-8x = -440$$

$$\frac{-8}{-8} \quad \frac{-440}{-8}$$

$$x = 55$$

y-int: $x=0$

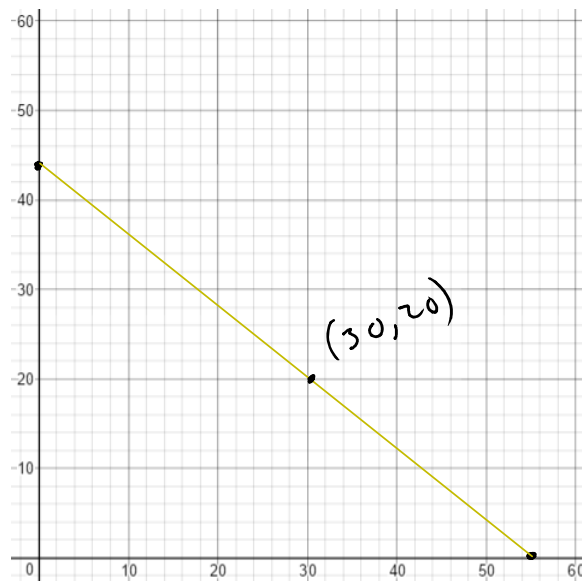
$$-8(0) - 11y + 440 = 0$$

$$-440 \quad -440$$

$$-11y = -440$$

$$\frac{-11}{-11} \quad \frac{-440}{-11}$$

$$y = 40$$



Homework: 7.2 Pg: 365 Q: 2, 3, 5, 6, 7, 10,

Test Tuesday