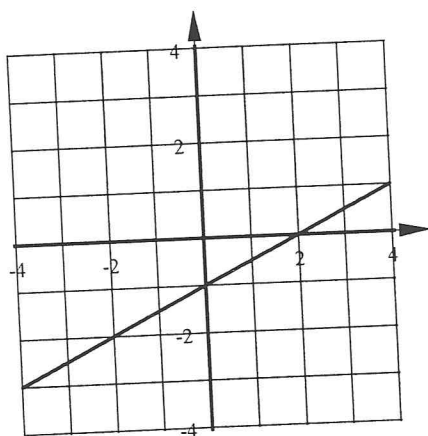Algebra 1   Bellwork   Friday, November 7, 2014
Write the equation of each line in SLOPE-INTERCEPT FORM

1. The line has a slope of $-\frac{4}{3}$ and passes through the point $(-6, 14)$

2. The line passes through the points $(15, -3)$ & $(25, 1)$

3. Use the line in the graph.

4. A pool has 400 gallons of water in it and the owner puts the hose in the pool. Water comes out of the hose at a rate of 3.5 gallons per minute.
   a) Write an equation to model this situation.

   b) Use this equation to predict how much water will be in the pool after $1\frac{1}{2}$ hours.

   c) Use this equation to predict the amount of time it will take until the pool has 1000 gallons of water.

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1. The line has a slope of $-\frac{4}{3}$ and passes through the point $(-6, 14)$

$$\boxed{y = -4/3\,x + 6}$$

$$y - 14 = -4/3(x + 6)$$

$$\begin{array}{ll} y - 14 = & -\frac{4}{3}x - 8 \\ +14 & +14 \end{array}$$

$$y = -4/3\,x + 6$$

2. The line passes through the points $(15, -3)$ & $(25, 1)$

$$\boxed{y = \frac{2}{5}x - 9}$$

$$m = \frac{1 - -3}{25 - 15} = \frac{4}{10} = 2/5$$

$$y - 1 = 2/5(x - 25)$$

$$\begin{array}{ll} y - 1 = & 2/5\,x - 10 \\ +1 & +1 \end{array}$$

$$y = 2/5\,x - 9$$

3. Use the line in the graph.
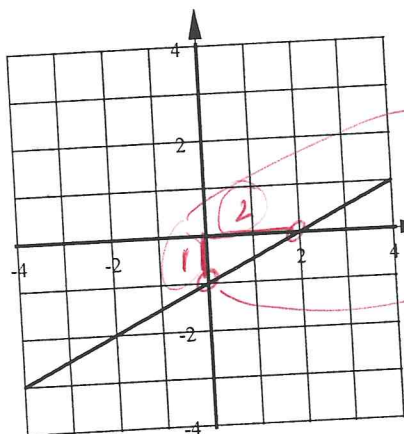
$$m = \frac{1}{2}$$

$$b = -1$$

$$\boxed{y = \frac{1}{2}x - 1}$$

4. A pool has 400 gallons of water in it and the owner puts the hose in the pool. Water comes out of the hose at a rate of 3.5 gallons per minute.
a) Write an equation to model this situation.

$$\boxed{y = 3.5x + 400}$$

$x = \#\,min$
$y = \#\,gallons\ in\ pool$

b) Use this equation to predict how much water will be in the pool after $1\frac{1}{2}$ hours.

$$1\frac{1}{2}\ hrs = 90\ min \rightarrow y = 3.5(90) + 400 = \boxed{715\ gallons}$$

c) Use this equation to predict the amount of time it will take until the pool has 1000 gallons of water.

$$\begin{array}{ll} 1000 = 3.5x + 400 \\ -400 \qquad\qquad -400 \end{array}$$

$$\frac{600}{3.5} = \frac{3.5x}{3.5}$$

$$\boxed{x = 171.43\ min} \quad 1$$

$$\approx 2\ hrs\ 51\ min$$