

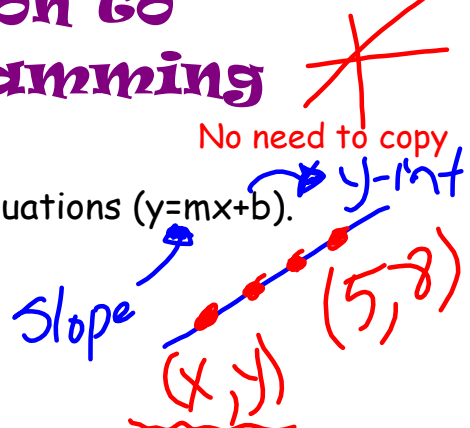
Review

Sept. 8, 2015

Introduction to Linear Programming

Systems of Linear Equations

A **system** is a set of two or more linear equations ($y=mx+b$).



No need to copy

For most questions, we are asking:

Does a point "satisfy the equation"?
(also known as "does the point fall on the line?")

OR

Where are the two equations equal?



Linear Programming

Coming back to haunt you...

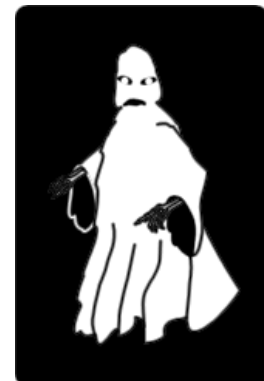
- rearranging equations

- graphing equations

- determining slope and y- intercept

- substituting values into an equation

$$y = 5x + 4$$
$$y = 5(3) + 4$$



Concepts

We Must Remember:

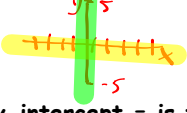
①. Slope y-intercept form of equation: General
 $Ax + By + C = 0$

$y = mx + b$ *And sometimes Slope-point form*

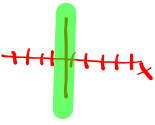
$m = \text{SLOPE}$
 $b = \text{Y-INTERCEPT}$

The equation of a line that passes through $P(x_1, y_1)$ and has slope m is:
 $y - y_1 = m(x - x_1)$

2. x-intercept = is a point on the graph where $y = 0$



3. y-intercept = is the point on the graph where $x = 0$



4. To find slope $(m) = \frac{y_2 - y_1}{x_2 - x_1}$

Rise

Run

$(3, 1)$ $(5, 2)$
 $x_1 \ y_1$ $x_2 \ y_2$

May 12-7:56 PM

Review of $y = mx + b$:

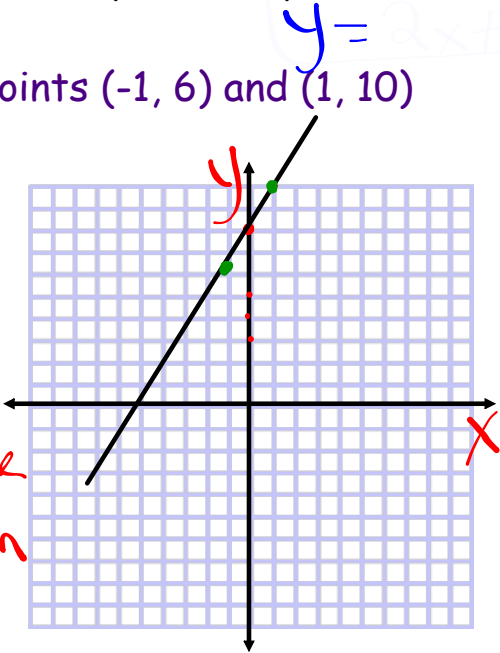
Write the following in Slope-Intercept form ($y = mx + b$):

a) A line that passes through points $(-1, 6)$ and $(1, 10)$
& a y-intercept of 8

$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{10 - 6}{1 - (-1)}$

$= \frac{4}{2} = 2$

$m = 2$ *2R/1R*



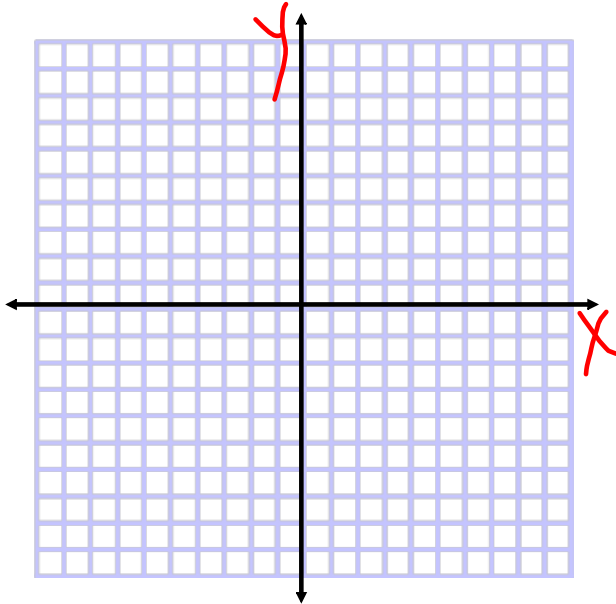
May 12-8:05 PM

Write the following in Slope-Intercept form

($y = mx + b$):

$y = \frac{3}{2}x - 3$

b) A line that has a y-intercept of -3 and passes through (4, 3).



$$m = \frac{y_2 - y_1}{x_2 - x_1}$$

$$m = \frac{3 - (-3)}{4 - 0} = \frac{6}{4} = \frac{3}{2}$$

May 12-8:08 PM

Write the following in Slope-Intercept form

($y = mx + b$):

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

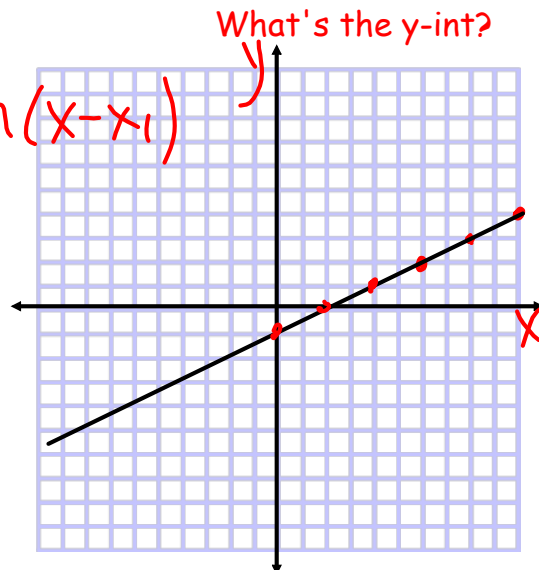
c) A line that has a x-intercept of 2 and passes through (6, 2).

$$m = \frac{y_2 - y_1}{x_2 - x_1}$$

$$m = \frac{2 - 0}{6 - 2} = \frac{2}{4} = \frac{1}{2}$$

What's the y-int?

$$y - y_1 = m(x - x_1)$$



May 12-8:09 PM

Ch. 3 Pre-rec Skills
#1-7

Sep 4-10:43 AM

BLM 3-2

Chapter 3 Prerequisite Skills

1. Perform the indicated operations. Simplify each answer.
 - a) $7x^2 - 3x + x^2 - x$
 - b) $(4x - 3)(x + 7)$
 - c) $(2x - 5)^2$
 - d) $(x - 1)^2 - (2x + 3)(x - 4)$
2. Use the graph to help answer the following questions.

- a) What is the value of the y-intercept?
 - b) What is the slope of the line?
 - c) What is the equation of the line using the form $y = mx + b$?
 - d) What is the range of the linear function shown on the graph?
 - e) What is the x-intercept?
3. If $m = -\frac{2}{5}$ and $(1, 4)$ is a point on the line, what are the coordinates of another point on the line that is in the fourth quadrant?
4. Determine the equation of a line that satisfies the following conditions. Leave each answer in the form $Ax + By + C = 0$
 - a) The line has a slope of $-\frac{3}{4}$ and a y-intercept of 2.
 - b) The line passes through the points $(-1, 0)$ and $(2, -6)$.
5. Write each equation in the form $y = mx + b$. Give the value of the slope and y-intercept.
 - a) $3x + y - 4 = 0$
 - b) $3x - 7y = 1$
 - c) $3x - 4y = 0$
6. For each equation, write it in the form $Ax + By + C = 0$, where A , B , and C are integers. Give the values of A , B , and C .
 - a) $y = -5x + 2$
 - b) $y = \frac{2x}{3} - 7$
 - c) $-1 = 4y - \frac{3}{4}x$

Aug 29-2:46 PM