Name _____
Date _____ Period _____

Ax + By = C Worksheet

REVIEW: Write an equation of a line through the given information.	
1.) (-5, 2); $b = 0$	2.) (2, 6); $b = \frac{4}{3}$
3.) (3, 10), (4, 13)	4.) (-10, -7), (20, 5)

Write an equation of a line for the following word problem.

5.) Total receipts for motion picture theaters were $3.9 billion in 1986. Receipts were $6.9 billion in 1992.

a.) Write an equation to model the relationship between receipts and time in years. Let 86 correspond to 1986.

b.) Use your equation to calculate motion picture theater receipts in the year 2010. (*Hint:* Think about the number you will use for 2010.)

Ax + By = C

Example:
Graph 3x + 4y = 8

Step 1:
To find the x-intercept, substitute 0 for *y* and solve for *x*.

$3x + 4y = 8$
$3x + 4(0) = 8$
$3x = 8$
$x = \frac{8}{3}$ or 2 2/3

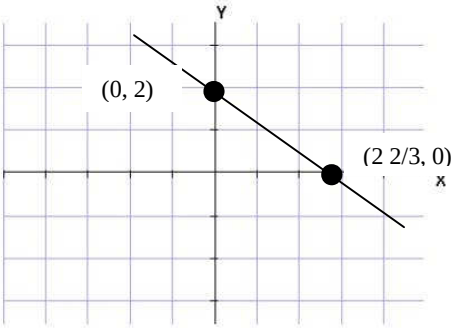
So, when y = 0, x = 2 2/3
Or the coordinate would be (2 2/3, 0)

Step 2:
To find the y-intercept, substitute 0 for *x* and solve for *y*.

$3x + 4y = 8$
$3(0) + 4y = 8$
$4y = 8$
$y = 2$

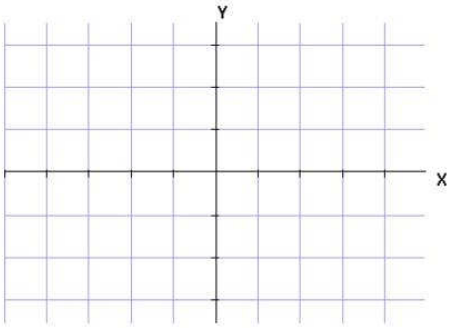
So, when x = 0, y = 2
Or the coordinate would be (0, 2)

Step 3:
Plot (2 2/3, 0) and (0, 2)
Draw a line through the points.

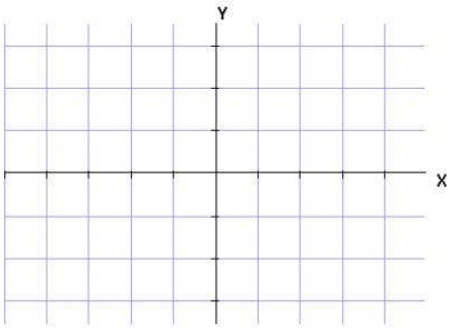


Find the x- and y-intercepts for each equation. And then graph the line. (You may need to count each line on the graph by 2, or make your interval 2.)

6.) 2x – y = 6



7.) x – y = -3



Convert the "Ax +By = C" equation to the "y = a + bx" equation

$5x - 3y = 120$ Subtract –5x from both sides of the equal sign.

$-5x \quad -5x$

$-3y = 120 - 5x$ Divide by –3 on both sides of the equal sign. So, 120 ÷ -3 AND -5x ÷ -3.

$\div -3 \quad \div -3$

$y = -40 + \frac{5}{3}x$

8.) $12x - 9y = 144$

9.) $-3x + 7y = -42$

What is the slope and y-intercept in the equation Ax + By = C?

Convert this equation to the slope-intercept form.

$Ax + By = C$

Which expression equals the slope *(b)*?

Which expression equals the y-intercept (*a*)?

Identify the slope and the y-intercept for the following equations.

10.) $8x - 10y = 100$

11.) $3x - 8y = 72$

12.) $-5x + 10y = 120$