# Algebra 7-8 Warm-Up

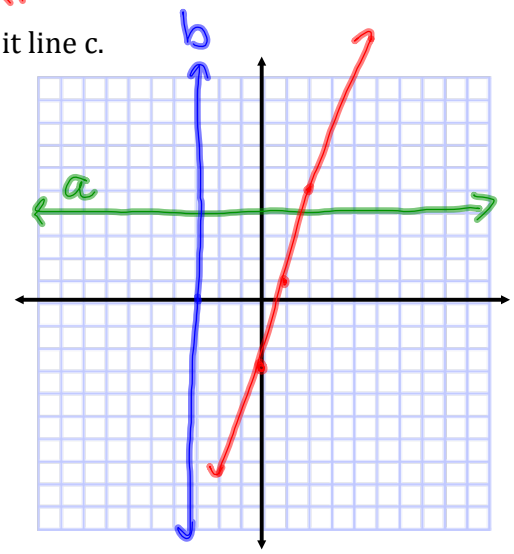
1. Graph the line y = 4 and label it line a.

2. Graph the line x = -3 and label it line b.

3. Graph the line y = 4x – 3 and label it line c.

starting pt
y-intercept

$m = \frac{4}{1}$ up 4 right




# Algebra 7-8: Equations for All Lines-Standard Form

| Vocab | Definition | Example |
|---|---|---|
| Standard Form | $Ax + By = C$<br>A, B, C = integers<br>No fractions/Decimals | $2x + 4y = 8$<br>$A = 2, B = 4, C = 8$ |

When graphing lines that are in standard form, we first have to change it into slope-intercept. From there, we know the slope and the y-intercept. Then we are able to graph by starting at the y-intercept and using the slope to find the next point.

$y = mx + b$

We need $y = mx + b$.

**Examples**

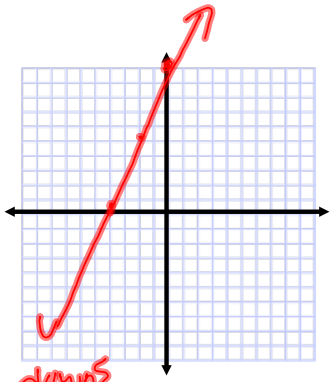
1. Graph $5x - 2y = -20$

$-5x \quad -5x$

$\frac{-2y}{-2} = \frac{-5x}{-2} - \frac{20}{-2}$

$y = \frac{5}{2}x + 10$ (start)

$m = \frac{5}{2} = \frac{-5}{-2}$ down 5 left 2



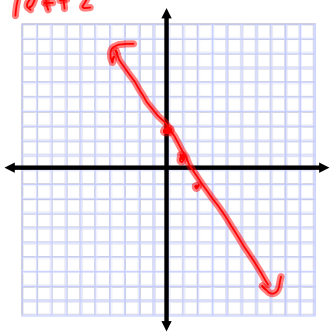
2. Graph $4x + 2y = 5$

$-4x \quad -4x$

$\frac{2y}{2} = \frac{-4x}{2} + \frac{5}{2}$

$y = -2x + 2.5$ (start)

$\frac{-2}{1} = \frac{\text{down } 2}{\text{right}}$



3. Grace has $36 in five-dollar bills and singles. How many of each kind of bill does she have?

$x$ = the # of \$5, $y$ = the number of \$1 bills

a. Write an equation that describes the situation. $5x + 1y = 36$

b. Give 3 solutions. $x=7, y=1$ ; $5 \cdot 7 + 1 \cdot 1 = 35 + 1 = 36$ ; $x=6, y=6$ ; $5 \cdot 6 + 6 = 36$ ; $x=5, y=11$ ; $5 \cdot 5 + 1 \cdot 11 = 25 + 11 = 36$

4. Rewrite each equation in standard form. $Ax + By = C$

a. $y = -8x - 3$

$+8x \quad +8x$

$8x + y = -3$

b. $y = \frac{2x}{3} + 12$ (3)

$-2x + 3y = 36$

$3y = 2x + 36$

$-2x \quad -2x$

$\frac{3}{1} \cdot \frac{2}{3} = 2 \quad -2x + 3y = 36$

5. Find the x- intercept and the y-intercept for the following equation. -10x + 5y = -10

(Hint: When a line crosses the x-axis the ___y___ value is 0. When a line crosses the y-axis, the ___x___ value is 0.)

**x-intercept**
**y = 0**

$-10x + 5y = -10$

$-10x + 5(0) = 10$

$\frac{-10x}{-10} = \frac{10}{-10}$

$x = -1$

$(-1, 0)$ x-int

**y intercept**
**x = 0**

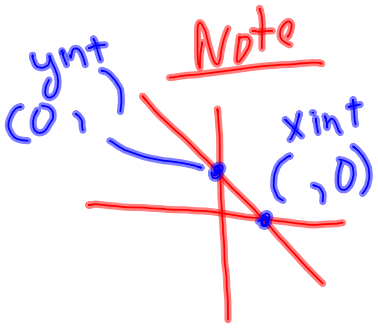
$-10x + 5y = -10$

$-10(0) + 5y = -10$

$\frac{5y}{5} = \frac{-10}{5}$

$y = -2$

$(0, -2)$ yint




Assign 7-8
3-6, 12-18