Warm-up Jan. 7

1. The width of a rectangle is 12 cm less than twice the length. The perimeter is 156 cm. Find the dimensions of the rectangle. Write out the formula and include a let statement.

let width $= 2x - 12$
length $= x$

$P = 2l + 2w$
$156 = 2(x) + 2(2x - 12)$
$156 = 2x + 4x - 24$
$156 = 6x - 24$
$+24 \qquad +24$

$\frac{180}{6} = \frac{6x}{6}$

$x = 30$

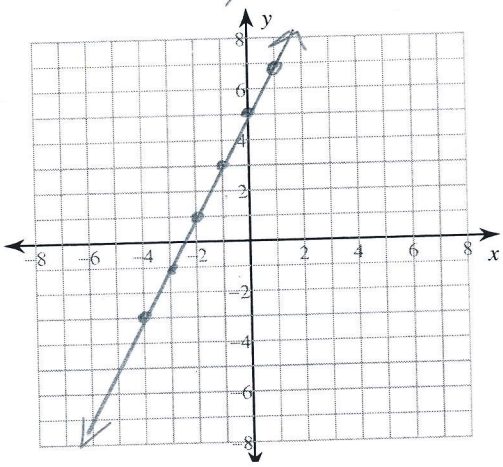
$2(30) - 12$
$60 - 12$
48

length $= 30$ cm
width $= 48$ cm

2. Graph the linear equation:
y = 2x – 5 Slope type: positive

$m = \frac{2}{1}$

$b = -5$



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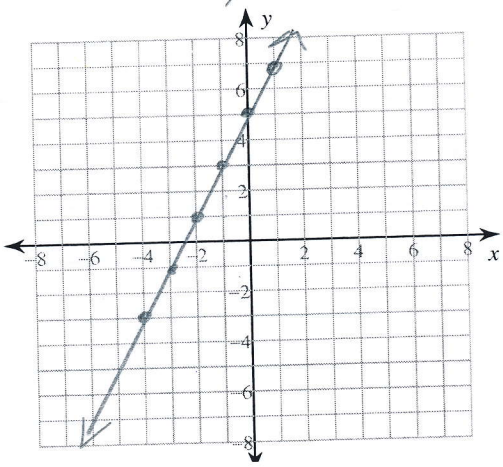


Notes:

Convert Standard form into Slope-intercept form

Created for you by Ms. Nhotsoubanh

The **standard form** for **linear equations** is: Ax + By = C.

The **slope-intercept form** for **linear equations** is: y = mx + b, where "m" represents the slope of the line and "b" is the y-intercept.

For example, 2x + 3y = 15 is a **linear equation** in **standard form**. Now let's convert it into **slope-intercept form**.

y = mx + b ← Step 1. Write "y = mx + b" above the original equation.

Example 1:

$$\cancel{2x} + 3y = 15$$
$$-2x \qquad\qquad -2x$$
$$\frac{3y}{3} = \frac{-2x}{3} + \frac{15}{3}$$

← Step 2. Subtract 2x from both sides. Can't combine 15 & –2x, they are not like terms

← Step 3. Divide 3 to both sides to get "y" by itself.

$$y = -\frac{2}{3}x + 5 \quad \leftarrow Slope\ intercept - form$$

y = mx + b

Example 2:

$$\cancel{12} + 2y = 6x$$
$$-12 \qquad\qquad -12$$
$$\frac{2y}{2} = \frac{6x}{2} - \frac{12}{2}$$
$$y = 3x - 6 \quad \leftarrow Slope\ intercept - form$$

Write each equation in standard slope-intercept form ($\boldsymbol{y = mx + b}$).

1.	2.
$y = mx + b$ $y - 3x = 7$ $+3x \quad +3x$ $y = 3x + 7$ $m = \frac{3}{1}$ $b = 7$	$y = mx + b$ $\frac{3y}{3} = \frac{6x}{3} - \frac{3}{3}$ $y = 2x - 1$ $m = \frac{2}{1}$ $b = -1$

Name: Key

Math 7H – Jan. 7

Glue on page 77

Write each equation in standard slope-intercept form ($y = mx + b$).

3. $y = mx + b$

$2y = -3x - 4$

$\frac{2y}{2} = \frac{-3x}{2} - \frac{4}{2}$

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

$m = -\frac{3}{2}$

$b = -2$

4. $y = mx + b$

$4x + 2y = 10$

$-4x \quad -4x$

$\frac{2y}{2} = \frac{-4x}{2} + \frac{10}{2}$

$y = -2x + 5$

$m = -\frac{2}{1}$

$b = 5$

5. $y = mx + b$

$2y - 4x = 2 + 8x$

$+4x \quad +4x$

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

$y = 2x + 1$

$m = \frac{2}{1}$

$b = 1$

6. $y = mx + b$

$\frac{1}{2}y - 4x = 3$

$0.5y - 4x = 3$

$+4x \quad +4x$

$\frac{0.5y}{0.5} = \frac{4x}{0.5} + \frac{3}{0.5}$

$y = 8x + 6$

$m = \frac{8}{1}$

$b = 6$

7. $y = mx + b$

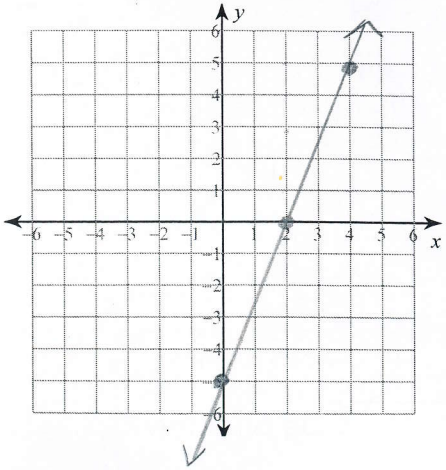
$2y = 5x - 10$

$\frac{2y}{2} = \frac{5x}{2} - \frac{10}{2}$

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

$m = \frac{5}{2}$

$b = -5$



8. add 1

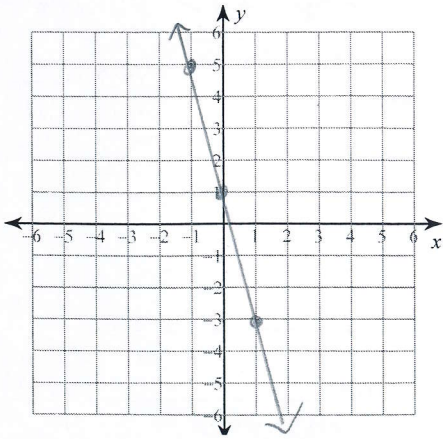
$-y = 4x - 2$

$\frac{-y}{-1} = \frac{4x}{-1} - \frac{2}{-1}$

$y = -4x + 1$

$m = -\frac{4}{1}$

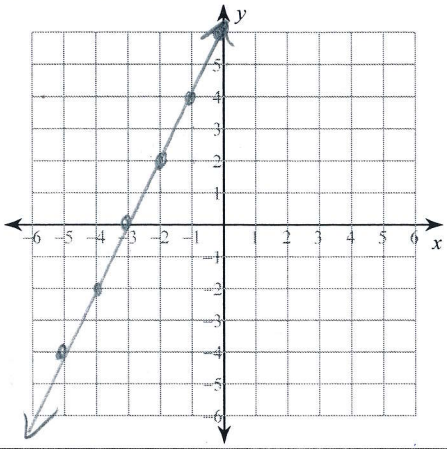
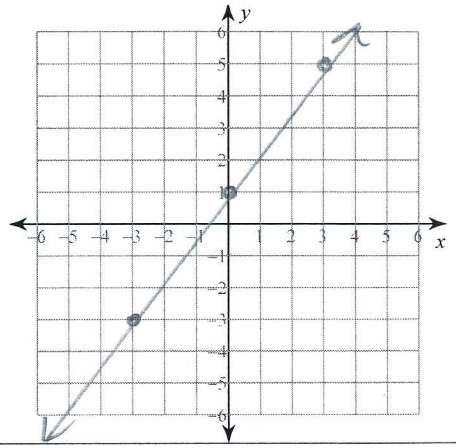
$b = 1$



HOMEWORK

Use pages 78 - 80 to show your work.

Directions: Write each equation in standard slope-intercept form ($y = mx + b$). Only graph 7 & 8.

1. $2x + y = 5$	2. $2y - 4x = 2$
3. $\frac{1}{3}y - 2 = 8x - 5$	4. $2y = 3(x - 4)$
5. $4 - 2y = 3x + 6$	6. $2(y + 5x) = 4x + 6$
7. $y - 6 = 2x$ 	8. $3y - 4x = 3$ 

9. What is (8x – 7) is subtracted from (12 – 5x)?

10. Given the expression: $9x^2 - x + 6 - 5x$, what is the: work on page 79
- Constant: 6
- Coefficient of x: -6
- State the number of terms in the expression: 3

11. The length of a rectangle is 5 more than twice the width. The perimeter is 42 inches. Find the dimensions of the rectangle. Write a let statement or draw a diagram and write out the formula.