Name: _____

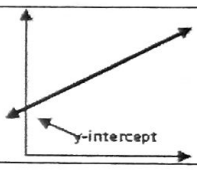## Guided Notes: Graphing Linear Equations

1. **SLOPE**: rate of _____ of a line

Slope = _____ $\dfrac{\text{change}}{\text{change}}$ → _____

Term	Definition	Example
Linear Equation	An equation that makes a _____ when you graph it	
Y-Intercept	Where a line crosses the _____	
Slope-Intercept Form	$y = mx + b$ Where "m" is _____ and b is the _____	

3. **The first step in our process is to identify the slope and the y-intercept!**

Always write this as a fraction

$$y = mx + b \leftarrow$$

Where we start our graph

4. **Example #1:** What is the slope of $y = -4x + 1$

   a. $-\dfrac{4}{1}$ b. $\dfrac{4}{1}$ c. $\dfrac{1}{1}$ d. $-\dfrac{1}{1}$

5. **Example #1:** What is the y-intercept of $y = -x + 5$?

   a. -1 b. 1   c. 5   d. -5

6. How do we find slope and y-intercept when the equation isn't in slope-intercept (y=mx+b) form?

   a. Put your equation in slope intercept form by solving for _____

   b. Find the slope and the y-intercept of the equations below:

$-2 = -3x$ $y - 2 = -3x$

_____

_____

$y - 9x = 0.5$

_____

_____

7. <u>**Example #3:**</u> What are the slope and y-intercept of $-2y = 6(5 - 3x)$?

   a. $y = 9x - 15$

   b. $y = -9x - 15$

   c. $y = 15x + 9$

   d. $y = -15x - 9$

8. **Time to Graph!!!**

   a. **Process for graphing a line given an equation:**

      1. Get equation in slope-intercept (_____)

      2. Identify slope and y-intercept

      3. Plot _____on graph

      4. From that point, go up/down the numerator of the slope and right/left the denominator and plot point

      5. Draw a line _____both points

9. **Horizontal and Vertical Lines**

   a. **Remember** equations with only _____ will form either a horizontal or vertical line

   b. y = # → _____ lines

      1. Slope = _____   2. Y-intercept = _____

   c. x = # → _____ lines

      1. Slope = _____   2. x-intercept = _____
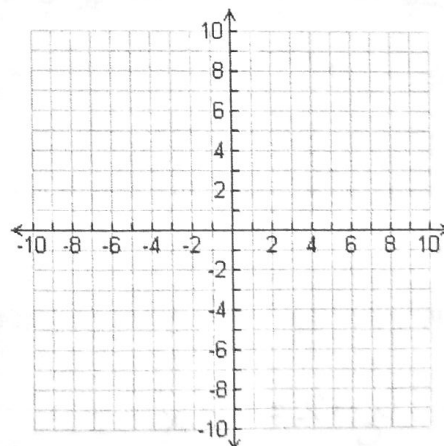
10. **Graph:** $y = \frac{1}{5}x + 5$

    a. **m =** _____

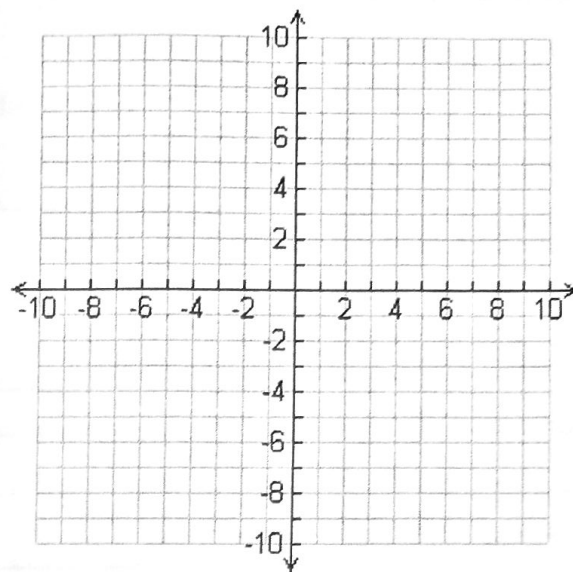   b. **b =** _____
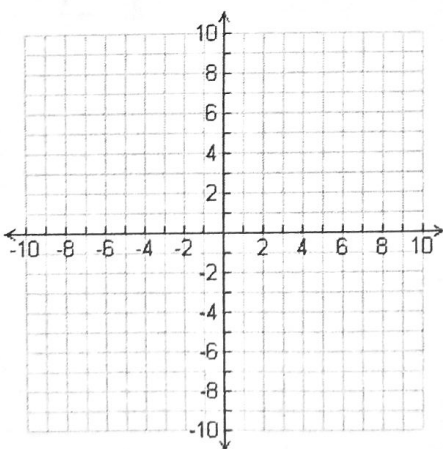
11. **Graph:** $y = -x + 2$

    a. **m =** _____

    b. **b =** _____

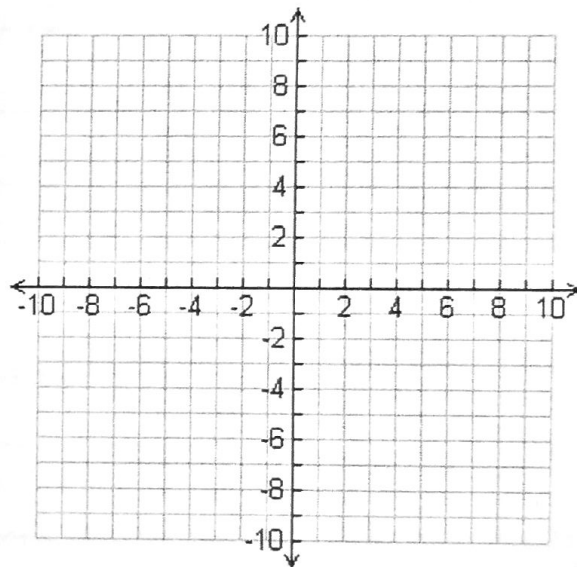12. Graph: $3y - x = -6$

    a. m = _____

    b. b = _____

13. Graph: $y = -1$

    a. m = _____

    b. b = _____

14. Graph: $x = 6$

    a. m = _____

    b. b = _____

    c. x-intercept @ _____