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**Chapter 2, Section 3-4 Notes**

***Graphing Linear Equations in Slope-Intercept & Standard Form***

**Today’s Learning Goal:** *At the end of today’s lesson, you should be able to graph a linear equation in slope-intercept and standard form.*

**A linear equation written in the form *y = mx + b* is in \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.**

**The slope of the line is \_\_\_\_\_ and the y-intercept of the line is \_\_\_\_\_\_\_.**

The y-intercept of a line is the y-coordinate of the point where the line crosses the \_\_\_\_\_\_\_\_\_\_\_\_\_\_. The x-intercept of a line is the x-coordinate of the point where the line crosses the \_\_\_\_\_\_\_\_\_\_\_\_\_\_.

Examples: *Find the slope and y-intercept of the graph of each linear equation:*

1. y = -4x – 2 B) y = 3x C) y = 3/2x + 5

More Examples: *Graph each equation. Then, identify the x-intercept:*

1. y = -3x + 3 B) y = -1/2x – 1



C) The cost **y** (in dollars) of taking a taxi **x** miles is y = 2.5x + 2. Graph the equation. Then, find the y-intercept and slope. What do they mean?

The **standard form** of a linear equation is: ***\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*** where *a* and *b* are both not zero.

To graph an equation in **standard form….**

Step 1: Write the equation in \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ form by solving for \_\_\_\_\_\_\_ first.

 Step 2: Use the \_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_ to graph the equation.

Examples: *Graph each linear equation.*

1. x + y = -2 B) -2x + 3y = -6 C) -1/2x + 2y = 6

  

You can also graph a linear equation in **standard form** using the X and Y intercepts.

* To find the **x-intercept:** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* To find the **y-intercept:** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Examples: *Find the x and y intercepts of each equation. Then, graph the equation.*

1. x + 3y = -3 B) 2x – y = 8

 

C) You have $6 to spend on apples and bananas. Graph the equation **1.5x + 0.6y = 6** where **x** is the number of pounds of apples and **y** is the number of pounds of bananas. Interpret the intercepts.



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More Examples to try on your own:

1. y = 3x – 7 b) y – 1 = -2/3x c) -3x + 2y = -6

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**Progress Monitoring:** *How do you feel about your level of understanding of graphing linear equations in slope-intercept and standard form?* (Rate yourself from 0 (don’t understand at all) to 10 (doing awesome))

 