Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Period: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Monday December 3-Thursday December 6 Guided Notes:** Slope Intercept Form & Linear Equations

**Monday, December 3rd**

**> Do Now:**

1. Write the slope-intercept form equation.
2. Identify all the variables in the slope-intercept form equation.
3. Identify the slope and y-intercept of the equation: 3x = 12y - 21

**> Converting From Standard Form to Slope Intercept Form**

* As a reminder, you can not identify the slope or the y-intercept of a an equation without it being in slope-intercept form.
* When converting an equation from standard form to slope-intercept form, follow these steps:

1. **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**
2. Identify what **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** to make the equation look like y = mx + b.
3. Move terms to the correct side by **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**
4. **\_\_\_\_\_\_\_**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ if there is a coefficient, other than 1, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**
5. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ all terms.

**Example Problems: (Convert the equation and ID the slope and y-int)**

|  |  |
| --- | --- |
| 1. 10x = -2y + 14 | 2. -6y + 24 = -30x |
| 3. 2 = 5x – 6y | 4. 9x = -18 + 27y |
| 5. -77x = 11y – 22 | 6. -95y = -190 – 95x |
| 7. 8x = 64 – 72y | 8. -1 = 10x – 4y |
| 9. -3x = -10 + 7y | 10. -2x = -1 – 8y |
| 11. 5y = -10 + 15x | 12. 7x = -28y + 9 |
| 13. -10 = 50y + 25 | 14. -9y = -36 + 45x |

**Tuesday, December 4th**

**> Do Now:**

1. Identify the slope and y-intercept: 4x = -12 + 8y
2. Identify the slope and y-intercept: 12x = 24y - 48

**Example Problems: (Convert the equation and ID the slope and y-int)**

|  |  |
| --- | --- |
| 1. -10 = 20x + 5y | 2. -21 = 7x -14y |
| 3. 9y = 36 – 18x | 4. -15x = 30y - 10 |
| 5. 2x -4y = 8 | 6. 3y = 12 – 6x |
| 7. 8x = -16y + 32 | 8. 20x = 40y - 20 |
| 9. 6x + 3y = -24 | 10. 8x = 2y + 32 |
| 11. -15x – 30 = 5y | 12. 28 – 14y = 7x |
| 13. -6x + 12 = 3y | 14. 16 = 32x – 8y |
| 15. 4x = 12y + 16 | 16. 30 = -60x + 15y |
| 17. 12y = -24 + 6y | 18. -15x = 30 - 3y |
| 19. 22x = 88 – 11y | 20. -75 = 25x + 5y |

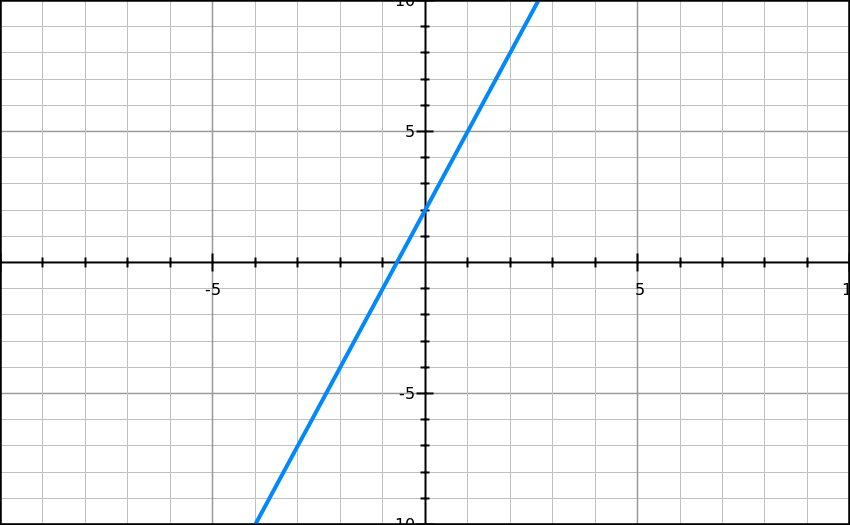
**Wednesday, December 5th**

**> Do Now:**

1. Identify the slope and y-intercept -12 = 24x + 48y
2. What is the slope of a line that passes through (-10, 5) & (20 – 15)?

**> Identifying Coordinates and Values**

* On the Tcap, they will ask for the ordered pair of the y-intercept.
* The y-intercpet is always on the y-axis so the **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** and the y coordinate is wherever the graph crosses the y-axis. i.e. (0, y-int).

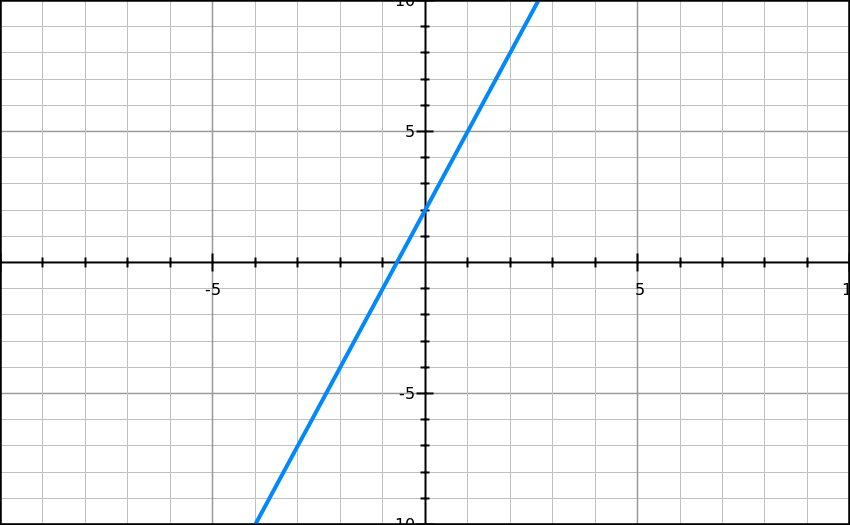
* The ordered pair for the y-intercept to the right is:
* Furthermore, the TCAP will have you identify x values on the graph.
* To find the y values, look at the x-value identified **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

* Or, you can **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**
* Example: If x = 2, what is the value of y?

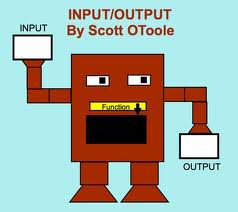
**Examples:**

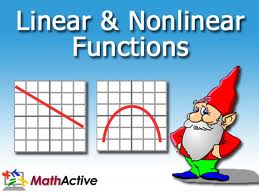
|  |  |
| --- | --- |
| 1. Write the ordered pair for the y-intercept.  When x = -4, what is y?  **C:\Users\IT\AppData\Local\Temp\graph_20111113_141548.png** | 2. Write the ordered pair for the y-intercept.  When x = 1, what is y?  **C:\Users\IT\AppData\Local\Temp\graph_20111113_141825.png** |
| 3. Write the ordered pair for the y-intercept.  When x = -4, what is y?  **C:\Users\IT\AppData\Local\Temp\graph_20111113_142154.png** | 4. Write the ordered pair for the y-intercept. When x = 1, what is y?  **C:\Users\IT\AppData\Local\Temp\graph_20111113_142454.png** |
| 5. Write the ordered pair for the y-intercept. When x = 4, what is y?  **C:\Users\IT\AppData\Local\Temp\graph_20111113_142700.png** | 6. Write the ordered pair for the y-intercept. When x = -3, what is y?  **C:\Users\IT\AppData\Local\Temp\graph_20111113_142855.png** |
| 7. Write the ordered pair for the y-intercept. When x = 2, what is y?  **32.tiff** | 8. Write the ordered pair for the y-intercept. When x = 2, what is y?  **33.tiff** |
| 9. Write the ordered pair for the y-intercept. When x = 2, what is y?  **34.tiff** | 10. Write the ordered pair for the y-intercept. When x = ½, what is y?  **35.tiff** |
| 11. Write the ordered pair for the y-intercept. When x = -3, what is y?  **36.tiff** | 12. Write the ordered pair for the y-intercept. When x = 2, what is y?  **41.tiff** |

**Thursday, December 5th**

**> Do Now:**

1. Identify the slope and y-intercept. 5x = 10y – 50
2. Write the coordinate for the y-intercept.
3. When x = 1.5, what is y?

**Functions: Linear or Nonlinear**

* **Function: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**
* Functions can be 2 different types:
  1. **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**
  2. **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**
* **Linear Function**: A function that \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ when graphed.
  + ID’d by the following formula: y = mx + b
    - \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
    - Ex: y = 2x - 7
* **Nonlinear Function:** A function that \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ when graphed.
  + ID’d by any equation where \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
    - Ex: y = 2x2 + 4

**>Functions: Linear v. Nonlinear**

**linear.tiffnonlinear.tiffLinear Function** (y = 2x – 7) **Nonlinear Function** (y = 2x2 – 7)

**Example Problems:**

|  |  |
| --- | --- |
| 1. Is this linear or nonlinear? How do you know?  ex1.tiff | 2. Is this linear or nonlinear? How do you know?  ex2.tiff |

|  |  |
| --- | --- |
| 3. Is this linear or nonlinear? How do you know?  ex3.tiff | 4. Is this linear or nonlinear? How do you know?  Y3=5x |
| 5. Is this linear or nonlinear? How do you know?  y = x3 + 2 | 6. Is this linear or nonlinear? How do you know?  y = -x – 7 |
| 7. Is this linear or nonlinear? How do you know?  y = 1/2x2 – 8 | 8. Correctly pair the equation with the graph.  a) y = 1/4x – 10 b) y = 2x2 + 2  ex82.tiffex8.tiff |
| 9. Correctly pair the equation with the graph.  a) y = 1/2x – 3 b) y = -1/2x2 – 3  ex9.tiff  ex92.tiff | 10. Agree or Disagree with the following statement.  A linear function can be identified by an equation  (y = mx + b) where x has an exponent of 2 or greater. |
| 11. Agree or Disagree with the following statement.  A nonlinear function looks like a line when graphed. |  |