Your Name

Mrs. Theo

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Lesson 1.2

Notes

Linear Functions and Transformations

Math Skill Objective: To be able to identify the parent function given a function. To be able to describe transformations of functions. To be able to graph linear and view them as transformations

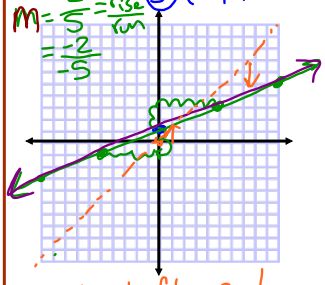
Life Lessons: Learning patterns and shortcuts can take you pretty far, but sometimes you need to really understand what is going on in order to keep track of the changes that are happening.

Graphing a Line

1. Make a point at the y-intercept (0,b)
2. From the point move up and over the slope and make a point where you finish
3. Connect the points with a straight line

$y = \frac{2}{5}x + 1$ (b = (0,1))

$m = \frac{2}{5} = \frac{rise}{run} = \frac{-2}{-5}$

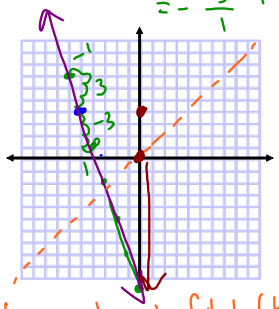


b = k Vert. shift up 1

m = a Vert. compression/shrink

1. Make a point at the given coordinate
2. From the point move up and over the slope and make a point where you finish
3. Connect the points with a straight line

(-5, 4) $m = -3 = \frac{-3}{1} = \frac{3}{-1} = -\frac{3}{1}$



horizontal shift left

reflection over y axis

~~horizontal shrink~~ by 3

OR

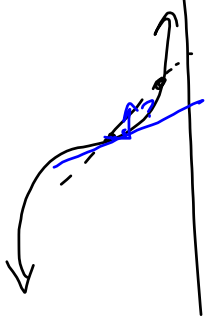
Vertical stretch by 3

Vertical shift down 11

Vert. reflect. over x axis

Calculate Slope

- stretch of a linear function
- rate of change
- $m = a = \frac{rise}{run} = \frac{y_1 - y_2}{x_1 - x_2}$



ex. $(3, 2)$ $(-4, 5)$ (x_1, y_1) (x_2, y_2)

$m = \frac{y_1 - y_2}{x_1 - x_2} = \frac{2-5}{3-(-4)} = \frac{-3}{7} = \frac{3}{-7}$

$m = \frac{0}{3} = 0$ No slope ⟷

ex. $m = \frac{3}{0}$ Undefined Slope ↕