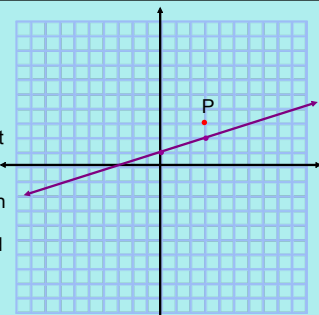


Journal Entry:

1. How could you change the y-intercept so that they graph of a second line passes through point P?
2. How could you change the slope so a third line goes through point P?
3. How are the new lines related to the original?



Oct 7-2:13 PM

Section 2-6 Families of Functions

Students will be able to analyze transformations of functions.

Aug 18-2:52 PM

Transformations:

There are sets of functions, called *families*, in which each function is a transformation of the **parent function**.

Parent functions are the simplest form in a set of functions for the family. ie- $y = x$, $y = x^2$

Each function in the family is a transformation of the parent.

Aug 18-2:52 PM

Group project: Split into pairs. Graph each of the following function families to see how the numbers change the graph. After you are done with all of them and have written descriptions for the transformations, your group will present one of them to the class.

Cassidy

1. $y = x^2$; then add a number to x; then subtract a number from x.
2. $y = x^2$; add to the inside of the function; subtract a number.
3. $y = x^2$ and $y = -(x)^2$; then $y = \sqrt{x}$ and $y = \sqrt{-x}$
4. $y = |x|$, $y = 2|x|$ and $y = .5|x|$

Tate

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Vertical translation

- number added to the end of a function moves it up
- number subtracted to the outside moves it down

Horizontal translation

- number added to the inside of the function moves it left
- number subtracted from the inside moves it right

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Reflection:

- negative multiplied to the outside it a reflection about the x-axis
- negative multiplied to the inside of the function is a reflection about the y-axis.

Vertical Stretch and Compression:

- multiplied by a number greater than 1 vertically stretches the y-values
- multiplication by a number between 0 and 1 vertically compresses the y-values.

Aug 18-2:52 PM

Identify the transformations:

$$f(x) = -2(x - 3)$$

refl. across x

$$g(x) = \sqrt{x + 7} - 4$$

↓
4

Aug 18-2:52 PM

The graph of $f(x)$ is the graph of $g(x) = x$ stretched vertically by a factor of 2 and then translated down 3 units. What is the function rule for $f(x)$?

$$f(x) = 2x - 3$$

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Which transformations change the graph of $f(x) = x$ to the graph of $g(x) = (2x + 4)^2 - 2$?

horiz. Compress by 2

horiz. Shift left 4

vert. Shift ↓ 2

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Identify the transformations:

$$y = 3 + (-\frac{1}{2}x)^2$$

Sep 29-10:59 AM

Hwk: pg. 104 - 106
#20 - 36 evens, 39, 42, 44, 48

Aug 18-2:52 PM