

What's Going On?

Checking In

Homework Logs

Minds on

Yesterday's F.F.M.

Action!

One Last Little Thing

Consolidation

Exit Question

Learning Goal - I will be able to apply transformations to our parent functions and graph them.

Checking In

Quiz!

Sit at YOUR OWN table.

When you're done, try the FFM question in your graph paper books.

Minds on

F.F.M.

Describe what you have to do to the parent function, $f(x)$, of any given family to graph:

i. $f(2x)$ $(2x)^2$

Divide all the x-values by 2

Horizontal compression **by a factor of 1/2**

ii. $f(0.5x)$

Divide all the x-values by 0.5, or multiply by 2.

Horizontal stretch **by a factor of 2**

iii. $2f(x)$ $(2x^2)$

Multiply the y-values by 2.

Vertical stretch **by a factor of 2**

iiii. $0.5f(x)$

Multiply the y-values by 0.5 or divide by 2

Vertical compression **by a factor of 0.5**

What's happening at

gilbertmath.com?

Soooo much!

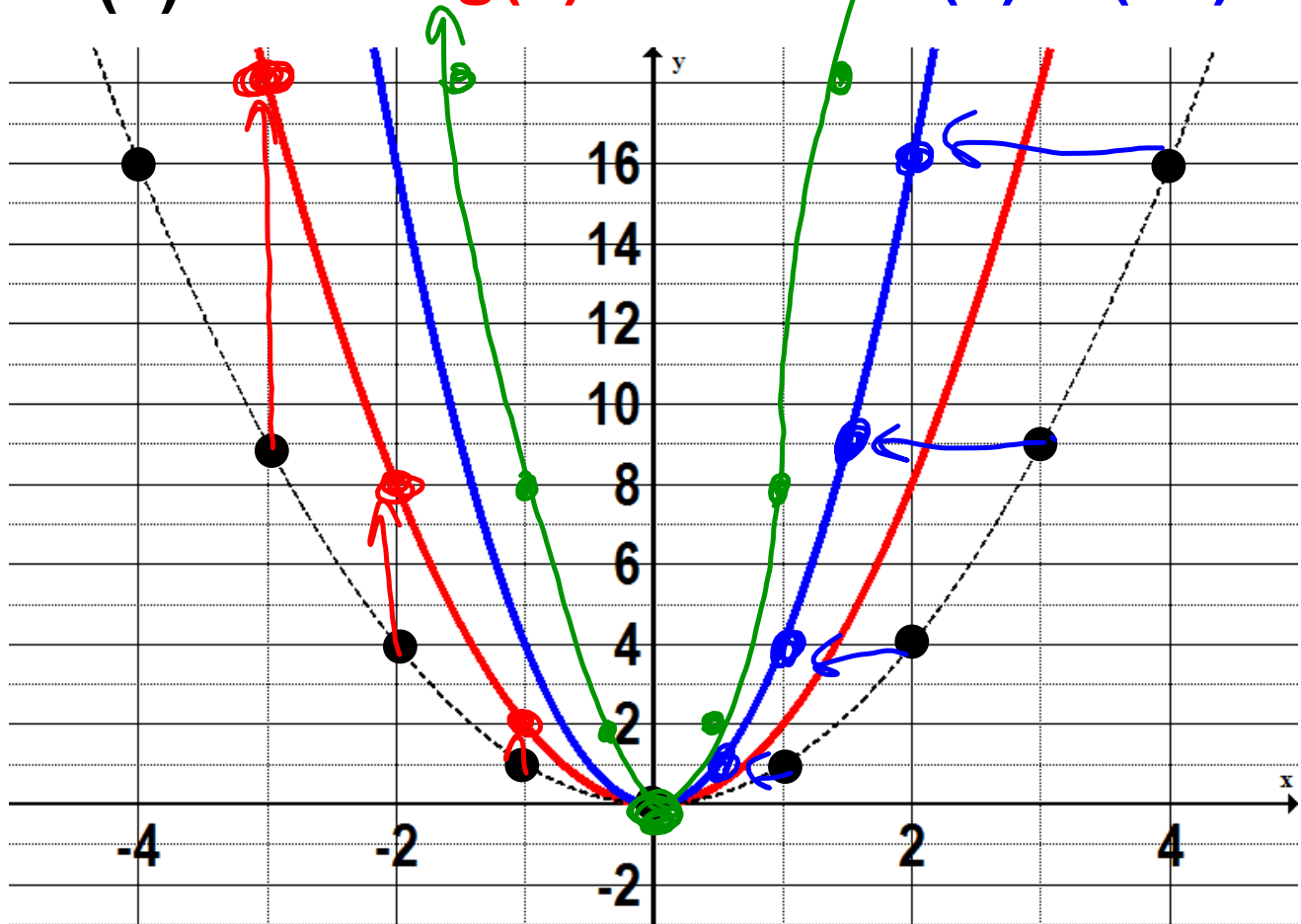
Action!

The Effects of k $j(x) = 2(2x)^2$

$$f(x) = x^2$$

$$g(x) = 2x^2$$

$$h(x) = (2x)^2$$



a changes the y -values
 (multiply the y -values of the parent function by a !)

k changes the x -values
 (divide the x -values of the parent function by k !)

$$g(x) = af[k(x - d)] + c$$

This function describes a transformation of the graph of f .

$$f(x) \text{ can be: } f(x) = x^2, \quad f(x) = |x|,$$

$$f(x) = \frac{1}{x}, \quad f(x) = \sqrt{x}$$

a: vertical stretch or compression

- stretch when $|a| > 1$
- compression when $|a| < 1$

reflection in the x-axis when a is negative

(MULTIPLY THE Y-VALUES OF PARENT FUNCTION BY a)

k: horizontal stretch or compression

- compression when $|k| > 1$
- stretch when $|k| < 1$

reflection in the y-axis when k is negative

(DIVIDE THE X-VALUES OF PARENT FUNCTION BY k)

$$g(x) = af[k(x - d)] + c$$

This function describes a transformation of the graph of f .

$f(x)$ can be: $f(x) = x^2$, $f(x) = |x|$,

$$f(x) = \frac{1}{x}, \quad f(x) = \sqrt{x}$$

d : horizontal translation

- to the right when d is positive
- to the left when d is negative

(ADD d TO THE X-VALUES OF THE PARENT FUNCTION)

c : vertical translation

- up when c is positive
- down when c is negative

(ADD c TO THE Y-VALUES OF THE PARENT FUNCTION)

Consolidation

Exit Question

Given the function $g(x) = -3\sqrt{-2(x-9)} + 3$

- Identify and graph its parent function on the axes provided.
- Graph $g(x)$ on the axes provided.
- List the transformations you applied to the parent function, **in order**, to properly plot $g(x)$
- List any invariant points between your two functions.
- State the domain and range of $f(x)$ using proper notation.
- State the domain and range of $g(x)$ using proper notation.
- Determine the equation of the inverse of this function.
- Graph the inverse.

(SEE ONLINE HANDOUT!)