

## What's Going On?

**Checking In**

Homework Logs

**Minds on**

A Change in Notation

**Action!**

$$g(x) = af(x - d) + c$$

**Consolidation**

Tell me about myself.

**Learning Goal - I will understand the effects of the constants  $a$ ,  $d$  and  $c$  on our parent functions.**

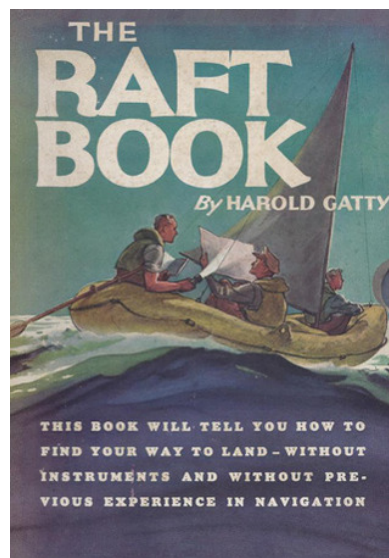
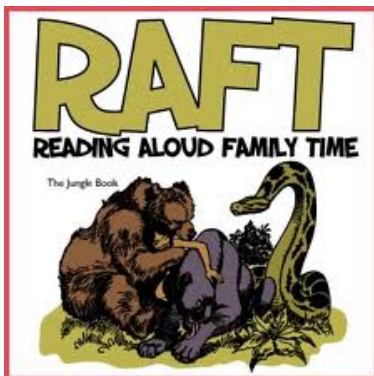
## Checking In

# Q.U.I.Z.

Please sit at your own table for the quiz.

This will be routine for quizzes, tests and RAFT.

When you're done your quiz, RAFT or work on homework.



 **Checking In**

# Homework Logs

# F.F.M. First Five Minutes

Each day when you come in, there will be an FFM question on the board. Copy the question into your FFM book and then answer it, showing your work and a full solution. Be sure to put the date in the top right corner.

If you really want to nail it, write the previous day's learning goal as well! (Above the question) Only do this if you are awesome, otherwise, don't.

Your first FFM!

Feb 10

The learning goal?

**"I will be able to determine the inverse of a function."**

Determine the inverse of the given function.

$$h(x) = 3\sqrt{x+1} - 4$$

# F.F.M. First Five Minutes

The learning goal?

**"I will be able to determine the inverse of a function."**

Determine the inverse of the given function.

$$h(x) = 3\sqrt{x+1} - 4$$

$$y = 3\sqrt{x+1} - 4$$

$$x = 3\sqrt{y+1} - 4$$

$$\frac{x+4}{3} = \sqrt{y+1}$$

$$\left(\frac{x+4}{3}\right)^2 = (y+1)$$

$$\left(\frac{x+4}{3}\right)^2 = y+1$$

$$y = \left(\frac{x+4}{3}\right)^2 - 1$$

$$y = \left(\frac{1}{3}(x+4)\right)^2 - 1$$

# Homework Policy

Homework is "optional" but highly recommended and encouraged.

If you do homework, you **MUST** keep it in your binder (including the work you did). A page of answers written with no work does not count unless you're a super genius.

The Homework Log is mandatory.

I will not check homework during a unit. However, at the end of each unit (on unit test day) you will hand in your completed homework log with **ALL** of the homework you did. I will keep your log sheet and return your homework to you.

**Minds on**

Table 'em, Graph 'em!

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

$$g(x) = -2(x - 3)^2 + 6$$

**SEE HANDOUT**  
**SOLUTIONS ON**  
**WEBSITE**

# F.F.M.

Please copy and complete the question with the learning goal from Feb 11 (yesterday)

**Yesterday's Learning Goal - I will understand the effects of the parameters  $a$ ,  $d$  and  $c$  on our parent functions.**

Without graphing, complete a table of values for the function  $f(x) = -3(x + 5)^2 + 9$  with 7 rows, and with the **vertex** in the middle row.

You may wish to start with the table of values of  $f(x) = x^2$ .

<b>x</b>	<b>y</b>
#	#
#	#
#	#
#	#
#	#
#	#
#	#

When you are done, you can

- read quietly
- work on homework ultra quietly
- complete the rest of the graphs on the handout from yesterday colour coded



# F.F.M.

Without graphing, complete a table of values for the function  $g(x) = -3(x + 5)^2 + 9$  with 7 rows, and with the vertex in the middle row.

You may wish to start with the table of values of  $f(x) = x^2$ .

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

<b>x</b>	<b>y</b>
-3	9
-2	4
-1	1
0	0
1	1
2	4
3	9

### x-values

subtract 5 from each x-value  
(horizontal shift to the left 5)

### y-values

multiply each y-value by -3,  
THEN add 9!  
(vertical stretch by 3, flipped  
about x-axis, vertical shift of 9)

$$g(x) = -3(x + 5)^2 + 9$$

<b>x</b>	<b>y</b>
-8	-18
-7	-3
-6	6
-5	9
-4	6
-3	-3
-2	-18

## Tomorrow - Quiz in First 20 minutes

1. Find the inverse of
  - a graph
  - a map
  - a table of values
  - an equation
2. Graph each parent function
3. Apply a few transformations to each parent function on a graph. (just a, d, c)
4. Given a table of values, rewrite the table of values if the function has transformations applied. (just a, d, c)

**Action!**

# Transforming Parent Functions

$$f(x) = a(x - d)^2 + c$$

**a:** Changes step pattern

If  $a$  is negative, graph is flipped upside down.

If  $|a| > 1$ , graph is stretched.

If  $|a| < 1$ , graph is compressed.

changes y-values (multiplication)

**d:** Moves the graph left and right.

"Horizontal Shift"

If  $d < 0$ , moves graph right.

If  $d > 0$ , moves graph left.

changes x-values (+ -)

**c:** Moves graph up and down

"Vertical Shift"

If  $c < 0$ , moves graph down.

If  $c > 0$ , moves graph up.

changes y-values (+ -)

**Action!**

$$g(x) = af(x - d) + c$$

This function describes a transformation of the graph of  $f$ .

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

$$f(x) = \sqrt{x}$$

$$f(x) = \frac{1}{x}$$

$$f(x) = |x|$$

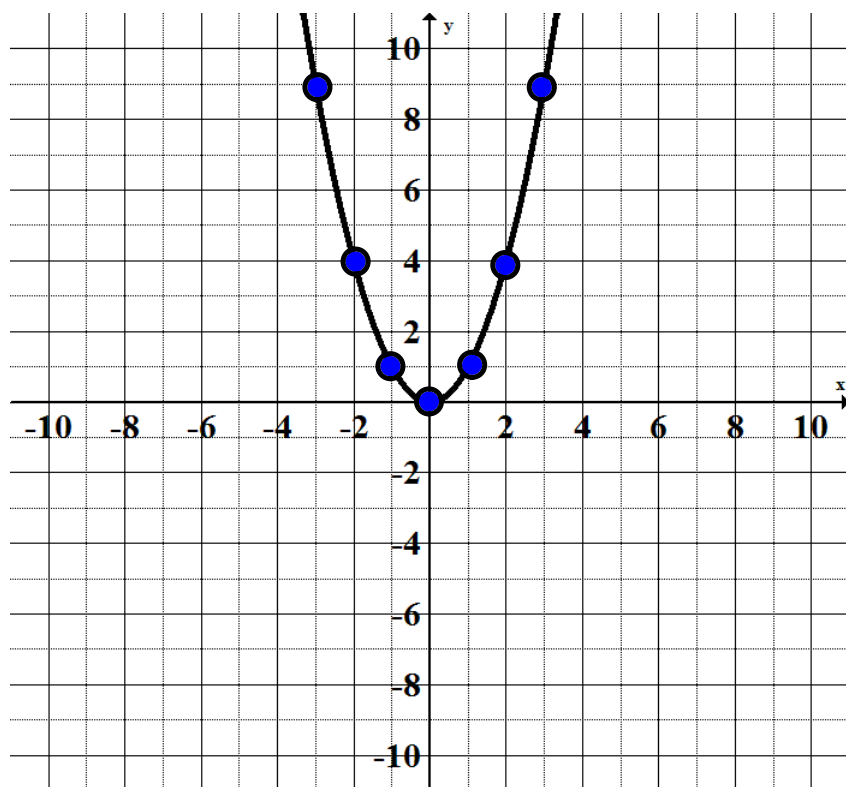
**Action!**

$$g(x) = af(x - d) + c$$

When  $f(x) = x^2$

$$g(x) = a(x - d)^2 + c$$

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



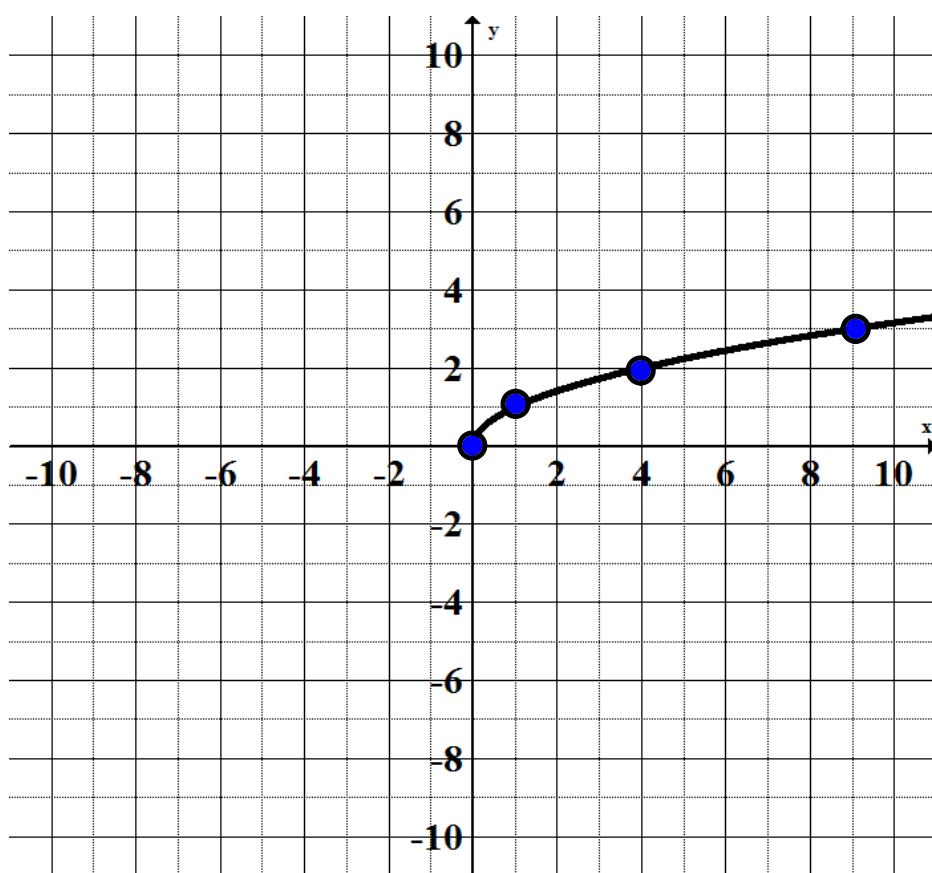
**Action!**

$$g(x) = af(x - d) + c$$

When  $f(x) = \sqrt{x}$

$$g(x) = a\sqrt{x - d} + c$$

$$f(x) = \sqrt{x}$$





**Action!**

$$g(x) = af(x - d) + c$$

When  $f(x) = \frac{1}{x}$

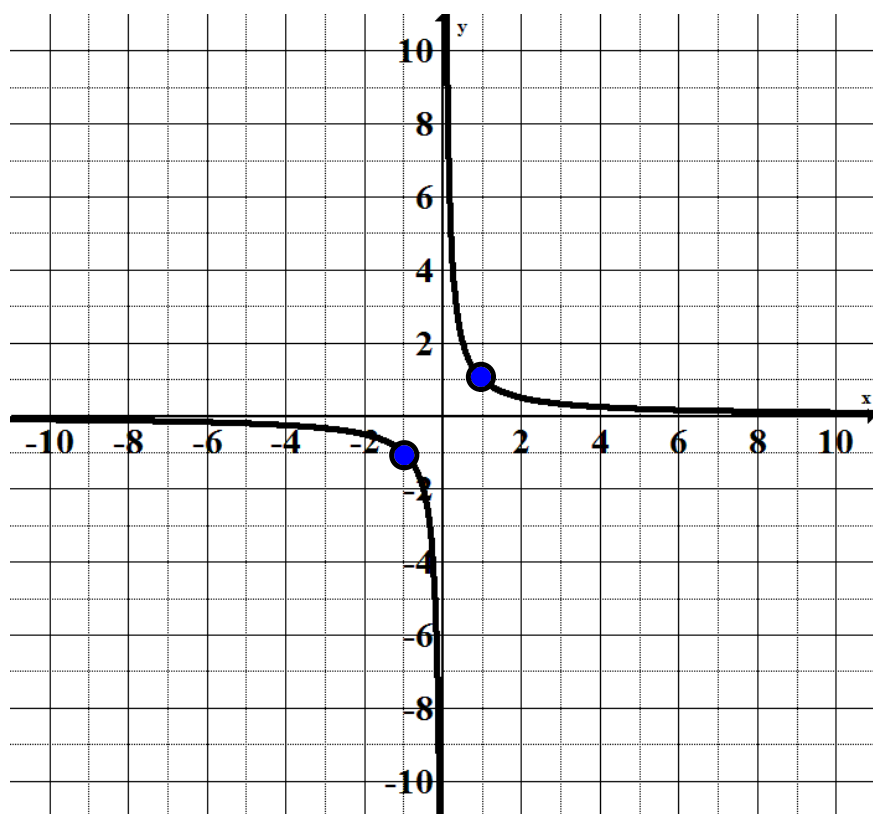
$$g(x) = \frac{a}{x - d} + c$$

**OR**

$$g(x) = a \left( \frac{1}{x - d} \right) + c$$

Handwritten notes:  $3 \left( \frac{1}{2} \right)$  with a vertical double-headed arrow pointing to  $\frac{3}{2}$ .

$$f(x) = \frac{1}{x}$$



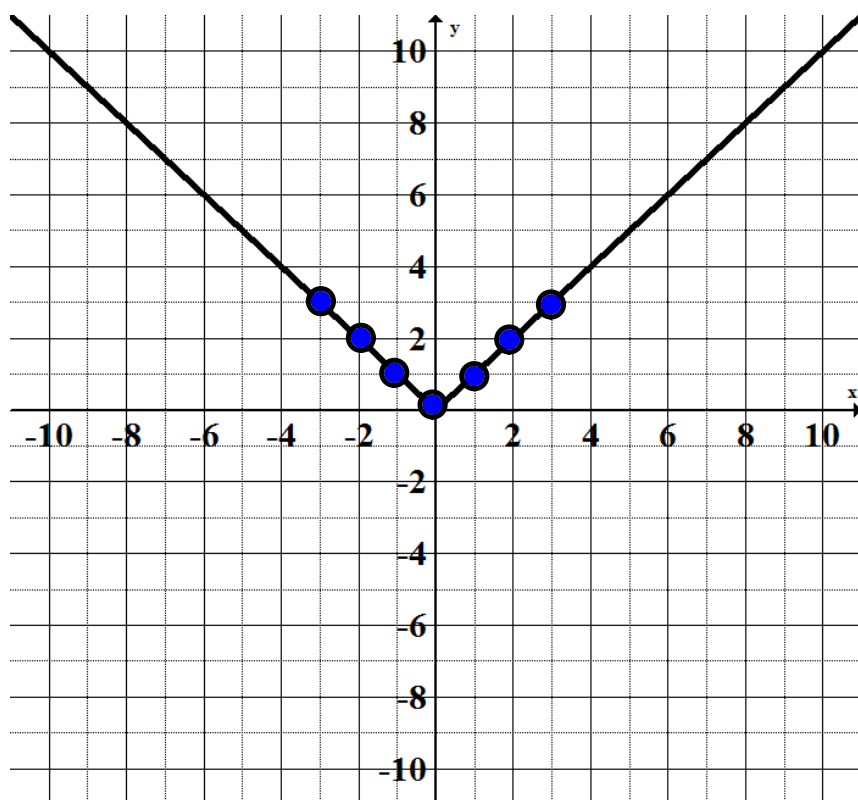
**Action!**

$$g(x) = af(x - d) + c$$

When  $f(x) = |x|$

$$g(x) = a|x - d| + c$$

$$f(x) = |x|$$



## QR Codes!

Absolute Value



Square Root



Quadratic



Reciprocal



## Consolidation

Tell me about myself.

$$f(x) = |x|$$

$$g(x) = 2|x + 5| - 1$$

**Consolidation**

Tell me about myself.

$$f(x) = \frac{1}{x}$$

$$g(x) = \frac{3}{x-4} + 5$$

**Consolidation**

Tell me about myself.

$$f(x) = \sqrt{x}$$

$$g(x) = 0.25\sqrt{x+1} - 4$$



**Consolidation**

**Homework!**

**[gilbertmath.com](http://gilbertmath.com)**