

What's Going On?

Checking In

Homework Logs

Minds on

Yesterday's F.F.M.

Action!

One Last Little Thing

Consolidation

Questions?

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

Checking In

Homework Logs

I will be collecting them on Tuesday.

Do not throw out any of your completed homework.

If you don't want it, give it to me and I will hold onto it for you.

What's happening at
gilbertmath.com?

Soooo much!

Minds on

Yesterday's F.F.M.

Given the function

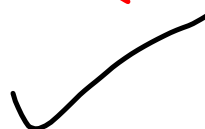
$$g(x) = -3\sqrt{-2(x-9)} + 3$$

Handwritten notes:
 - A green circle around -3 with a line pointing to it saying "multiply y-coordinates".
 - A blue circle around the 3 in (x-9).
 - A red circle around -2 with a line pointing to it saying "divide x-coordinate".

a) Identify and graph its parent function on the axes provided.

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

b) Graph $g(x)$ on the axes provided.



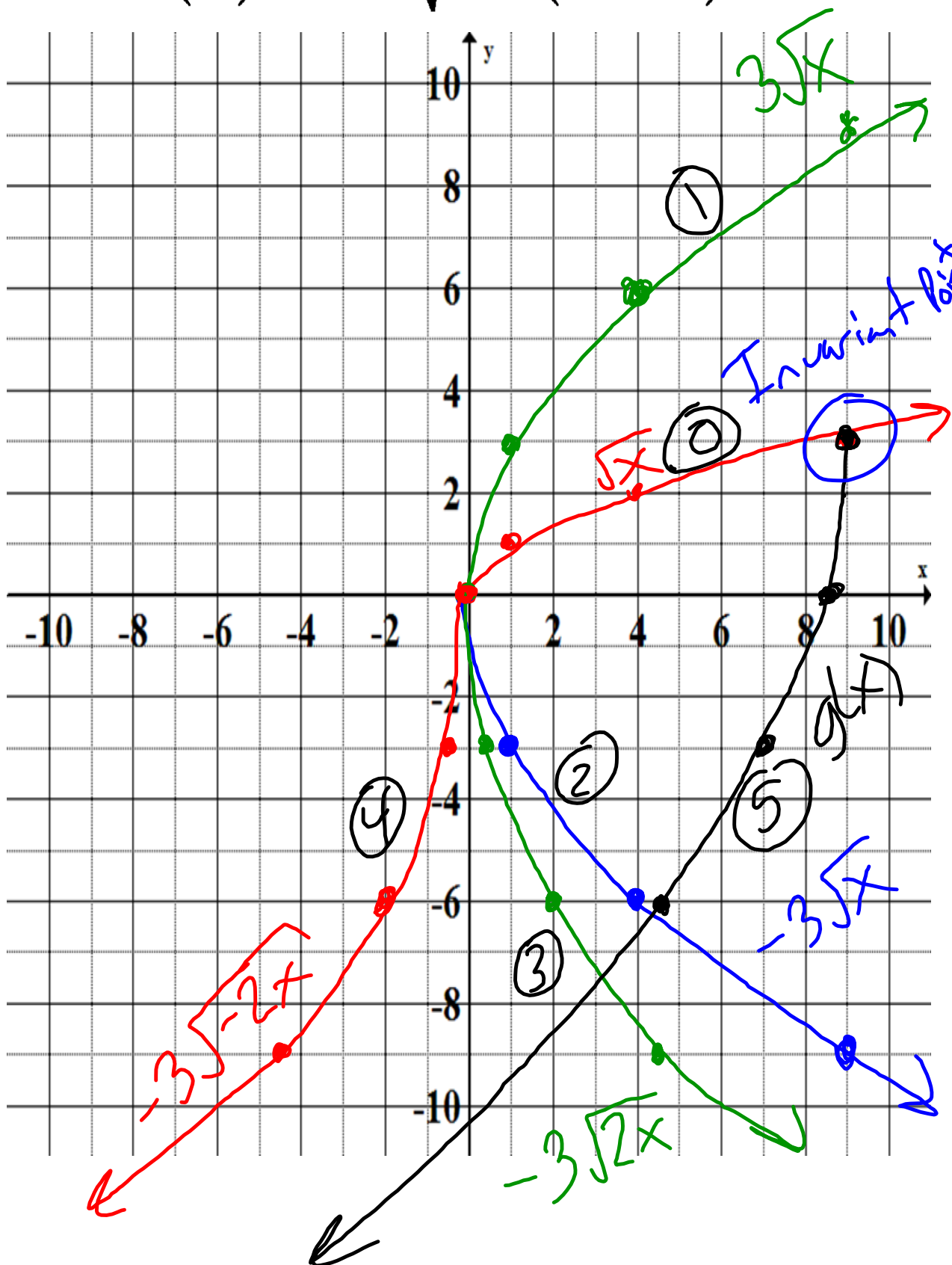
c) List the transformations you applied to the parent function, **in order**, to properly plot $g(x)$.

d) List any invariant points between your two functions.

e) State the domain and range of $f(x)$ using proper notation.

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



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- c) ①. We graphed parent function.
- a = -3 { 1. We multiplied each y-value of the parent function by 3.
2. We flipped the new function/graph from ① about the x-axis.
- b = -2 { 3. We divided each x-coordinate of the graph from ② by 2.
4. We flipped the graph from 3 about the y-axis.
5. We shifted each point to the right 9 units and up 3 units. ($d=9, c=3$)

d) There is one invariant point
at $(x_M) = (1, 3)$

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

$$\text{Domain} = \{x \in \mathbb{R} \mid x \geq 0\}$$

$$\text{Range} = \{y \in \mathbb{R} \mid y \geq 0\}$$

f) for $g(x) = -3\sqrt{-2(x-9)} + 3$

$$\text{Domain} = \{x \in \mathbb{R} \mid x \leq 9\}$$

$$\text{Range} = \{y \in \mathbb{R} \mid y \leq 3\}$$

Action!

One Last Little Thing...

When we are dealing with transformations, we need our functions to be in the form:

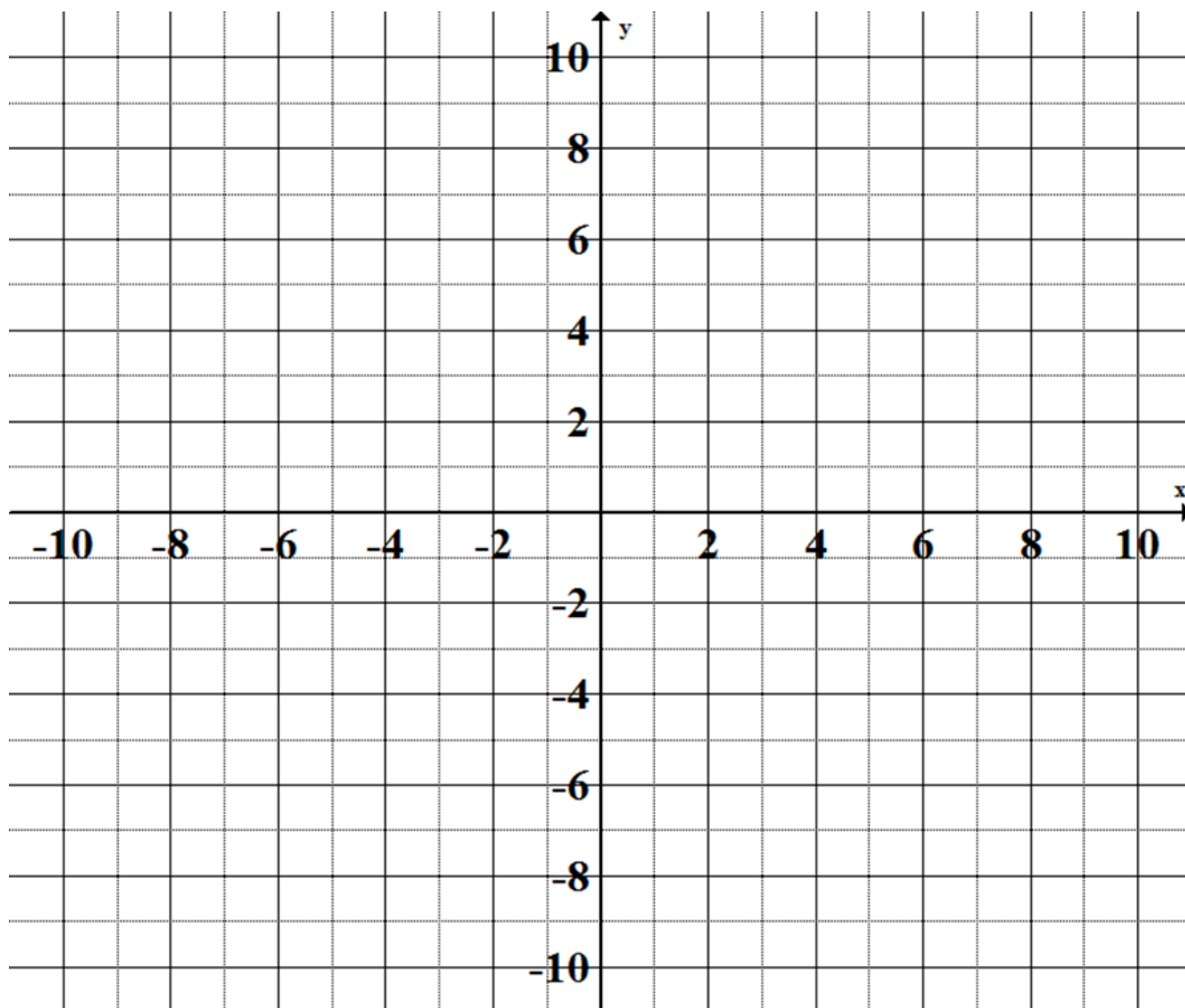
$$y = af[k(x - d)] + c$$

When we are dealing with transformations, we need our functions to be in the form:

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

For $f(x) = |x|$, sketch the graph of $g(x) = -2f(-2x - 8) + 7$

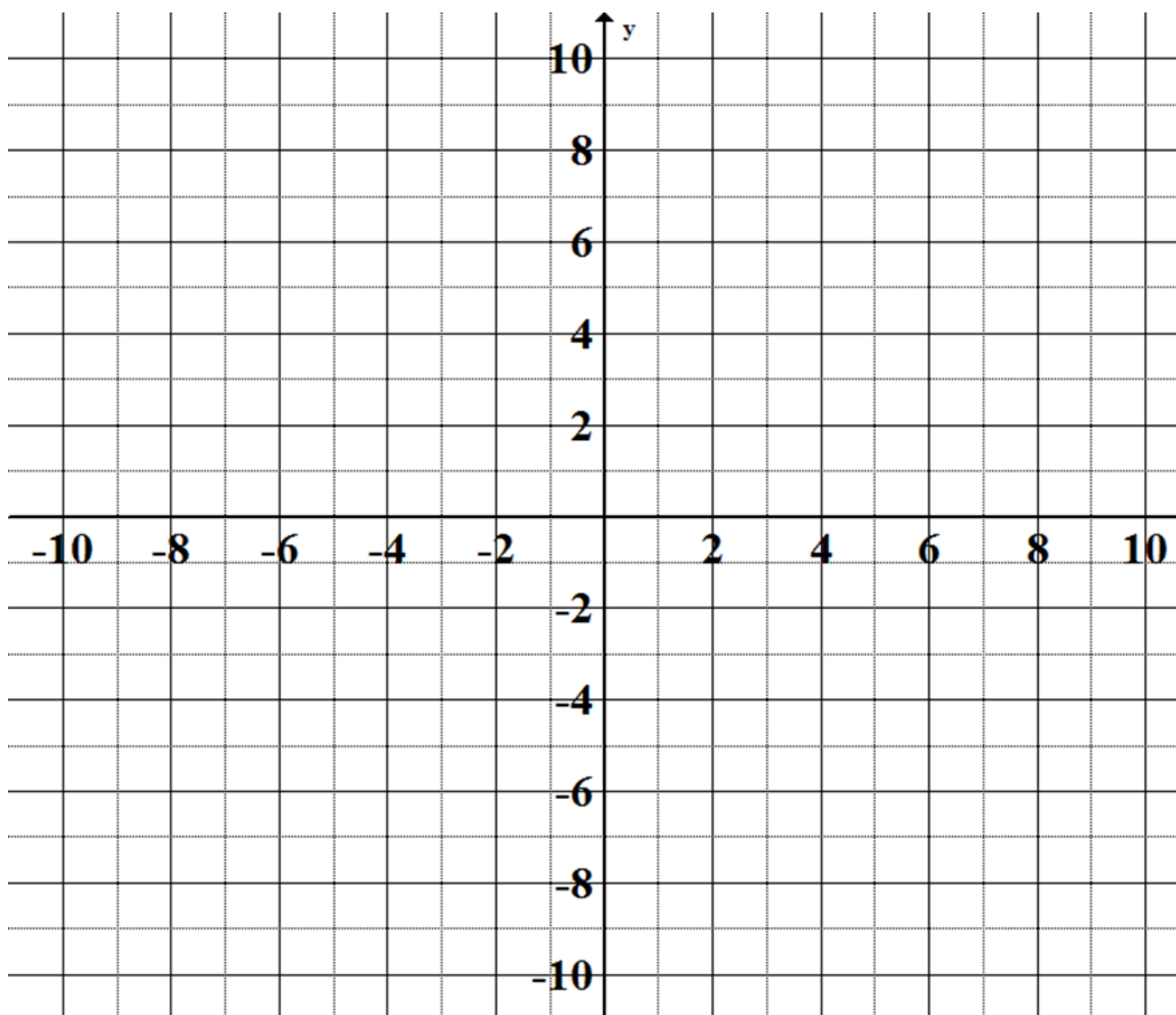
Huh?! That isn't $k(x - d)$ FACTOR IT!



When we are dealing with transformations, we need our functions to be in the form:

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

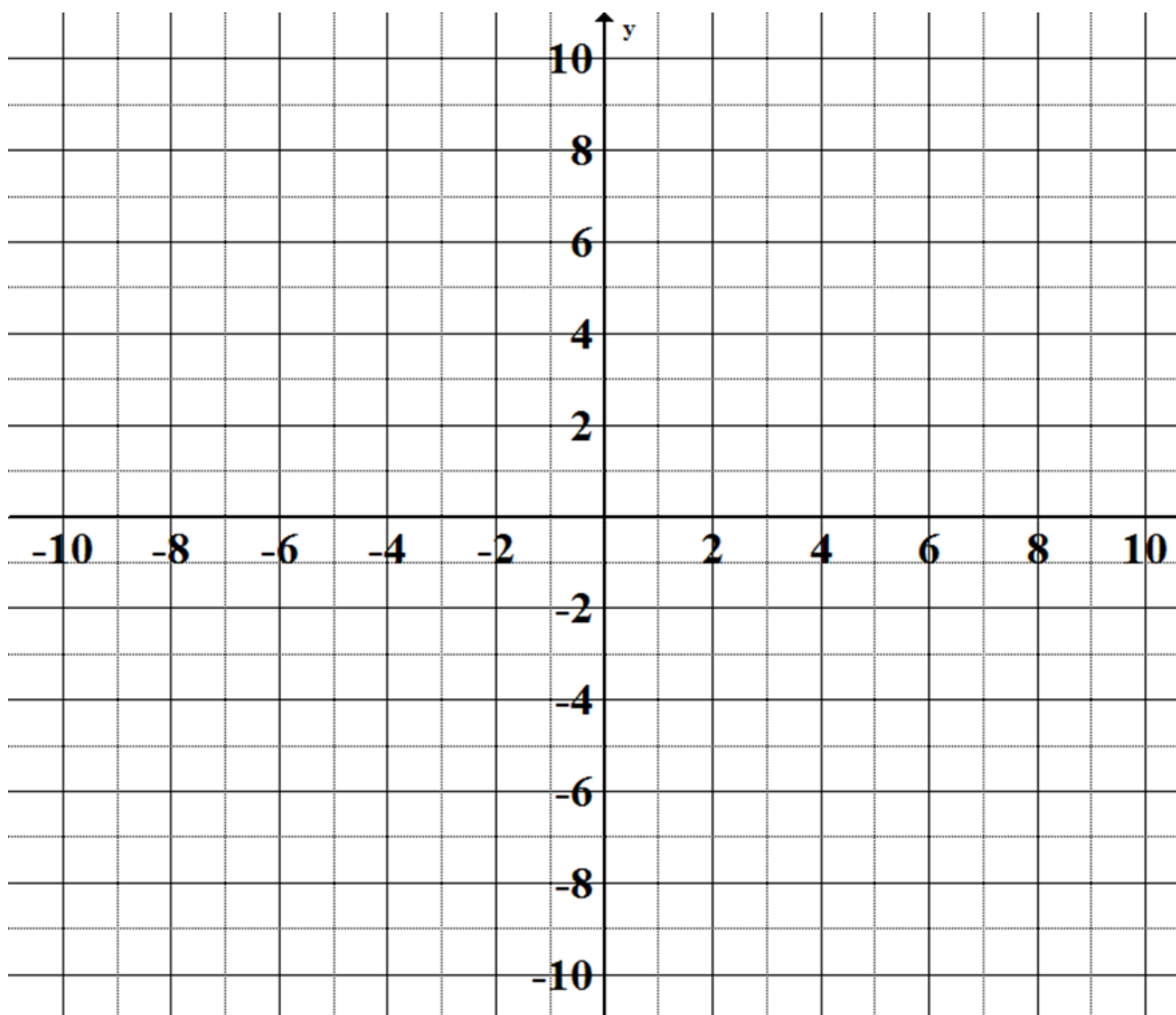
For $f(x) = x^2$, sketch the graph of $g(x) = f(4x + 8)$



When we are dealing with transformations, we need our functions to be in the form:

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

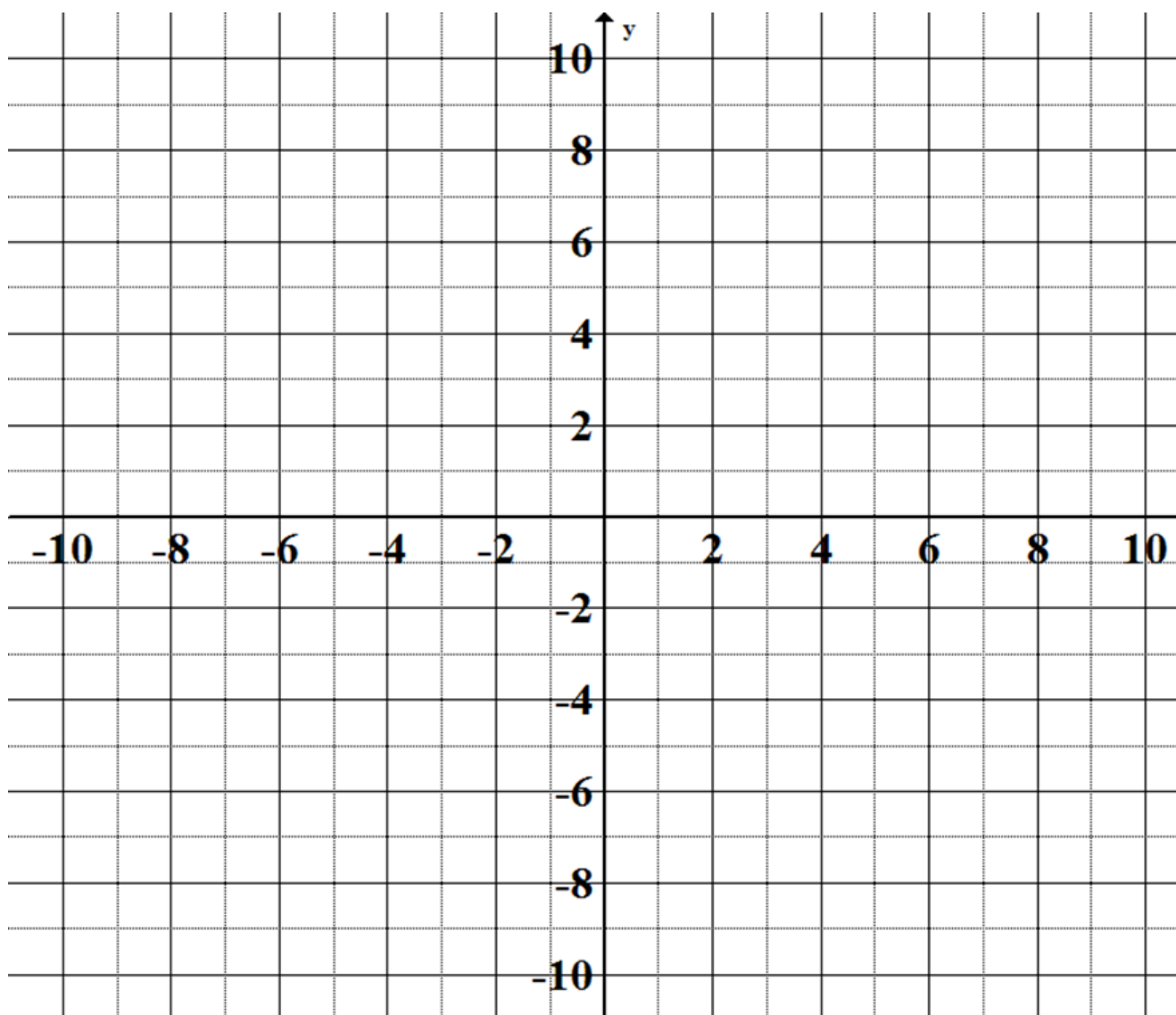
For $f(x) = \sqrt{x}$, sketch the graph of $g(x) = -f(-3x + 3) + 4$



When we are dealing with transformations, we need our functions to be in the form:

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

For $f(x) = x^2$, sketch the graph of $g(x) = f(3 - x) + 2$



Consolidation

Homework!

Pg. 70
11-13

(Save for Monday, or give it a shot!
Basically just factor it first and then
do the regular transformations.)

Pg. 76-77
ALL

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