Algebra 2 Honors
Warm Up (Post 1-1, 1-2)

Name Key
Date 9 Block ____

I. Who Am I?

In 1 – 3, build the equation described.

1. I am in the quadratic family. I have been vertically shifted down three units and horizontally shifted to the right five units. I am reflected about the x-axis but not the y-axis. I have not been horizontally compressed or stretched, but I have been vertically stretched by a factor of 2. Who am I?

parent $\Rightarrow f(x) = x^2$

- Vertical shift down 3 $\rightarrow f(x)-3$
- Horizontal shift right 5 $\rightarrow f(x-5)-3$
- Reflection across x-axis $\rightarrow -f(x-5)-3$
- Vertical stretch by a factor of 2 $\rightarrow -2f(x-5)-3$

$\Rightarrow g(x) = -2f(x-5)-3$

$\boxed{g(x) = -2(x-5)^2-3}$

2. I am a descendent of the cubic family from Rubiksville. I have not shifted horizontally or vertically, but I have been reflected over the x-axis. I have also been horizontally compressed by a factor of $\frac{1}{3}$ with no vertical stretch or compression. Who am I?

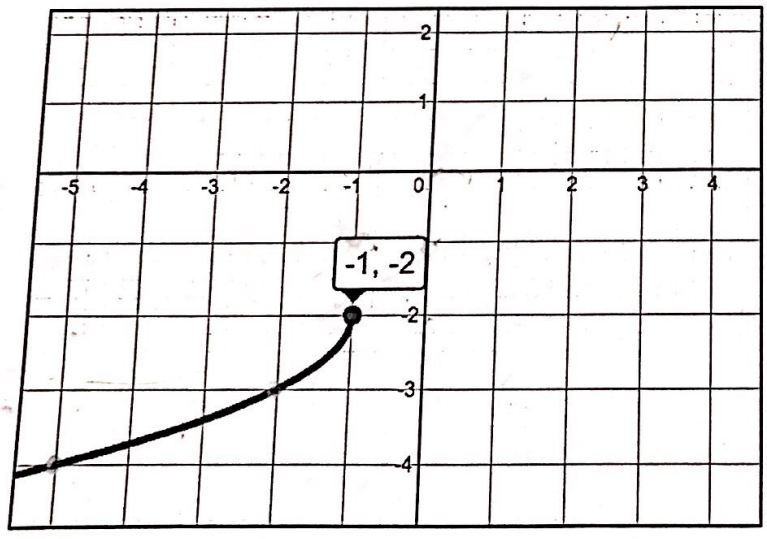
parent $\Rightarrow f(x) = x^3$

- Reflection over x-axis $\Rightarrow -f(x)$
- Horizontal Compression by a factor of $\frac{1}{3} \Rightarrow -f(3x)$

$\Rightarrow g(x) = -f(3x)$

$\boxed{g(x) = -(3x)^3}$

3. This is my senior picture from my high school yearbook. Who am I?



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

- Reflection over xaxis $\Rightarrow -f(x)$
- Reflection over yaxis $\Rightarrow -f(-x)$
- Horizontal shift left 1 $\Rightarrow -f(-(x+1))$
- Vertical shift down 2 $\Rightarrow -f(-(x+1))-2$

$g(x) = -f(-(x+1))-2$

$\boxed{g(x) = -\sqrt{-(x+1)}-2}$

II. Describe the transformations.

In 4 - 5, identify the transformations. Then, state the domain and range using interval notation.

4. $g(x)=\sqrt{-3(x-2)}+6$

   a. Parent Function: $\sqrt{x}$ → square root

   b. Vertically shifted by: 6 up

   c. Horizontally shifted by: 2 right

   d. Reflected about the x-axis: (yes) or no

   e. Reflected about the y-axis: yes or (no)

   f. Vertically stretched or compressed by a factor of none.
   circle one

   g. Horizontally stretched or (compressed) by a factor of 1/3.
   circle one

   h. Domain: $(-\infty, 2]$

   i. Range: $[6, \infty)$

5. $h(x)=-3(x+2)^2+1$

   a. Parent Function: x^2 → quadratic

   b. Vertically shifted by: 1 up

   c. Horizontally shifted by: 2

   d. Reflected about the x-axis: (yes) or no

   e. Reflected about the y-axis: yes or (no)

   f. Vertically (stretched) or compressed by a factor of 3.
   circle one

   g. Horizontally stretched or compressed by a factor of none.
   circle one

   h. Domain: $(-\infty, \infty)$

   i. Range: $(-\infty, 1]$