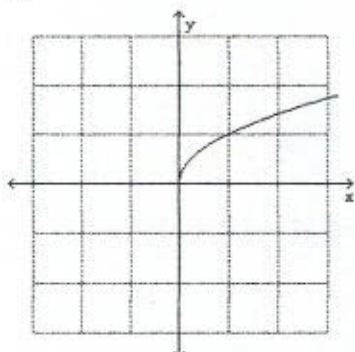


Transformations Worksheet
Honors Precalculus

Name: _____ Date: _____

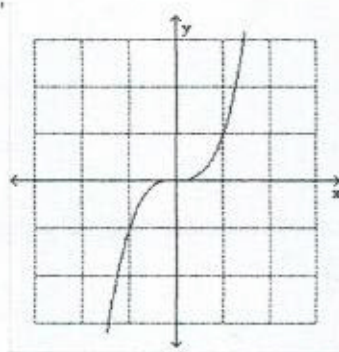
1. Use the graph to name the function..

a.



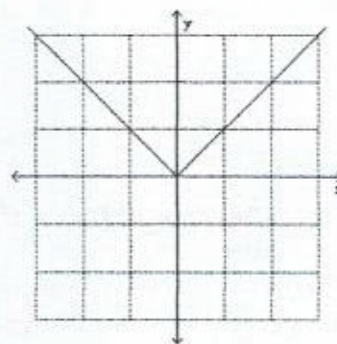
Function: $f(x) = \sqrt{x}$
SQUARE ROOT

b.



Function: $f(x) = x^3$
CUBIC

c.



Function: $f(x) = |x|$
ABSOLUTE VALUE

2. Describe how to transform the graph of f into the graph of g .

a. $f(x) = \sqrt{x}$ and $g(x) = -3\sqrt{x} + 4$

REFLECT OVER X-AXIS (VERTICAL)
VERTICAL STRETCH BY 3
↑ 4

b. $f(x) = \sqrt{x}$ and $g(x) = -\sqrt{-x-1}$

REFLECT OVER X-AXIS (VERTICAL)
REFLECT OVER Y-AXIS (HORIZONTAL)
→ 1

c. $f(x) = x^5$ and $g(x) = (8x+3)^5 - 6$

HORIZONTAL SHRINK BY $\frac{1}{8}$
← 3
↓ 6

d. $f(x) = |x|$ and $g(x) = -|x+2| - 3$

REFLECTION OVER X-AXIS (VERTICAL)
← 2
↓ 3

3. Write an equation for the function that is described by the given characteristics.

- a. The shape of $f(x) = \sqrt{x}$, but moved two units to the right, eight units downward and reflected about the x-axis.

$$-\sqrt{x-2} - 8$$

- b. The shape of $f(x) = x^2$ reflected over the x-axis, vertically stretched by a factor of 6 and shifted left 2 units.

$$-6(x+2)^2$$

- c. The shape of $f(x) = |x|$, but moved 5 units upward, vertically shrunk by a factor 8, reflected about the y-axis.

$$\frac{1}{8}|-x| + 5$$

- d. The shape of $f(x) = \frac{1}{x}$ horizontally shrunk by a factor of 2 and shifted up 3 units.

$$\frac{1}{2x} + 3$$

- e. The shape of $f(x) = x^3$, but moved six units to the left, six units downward and reflected about the x-axis.

$$-(x+6)^3 - 6$$