

Name: Selected Answers

Date: _____

Homework: Graph from Parent Functions

Honors PreCalculus

Write the equation for the final transformed graph.

1. $f(x) = \sqrt{x}$; shift 3 units to the left, stretch vertically by a factor of 5, and reflect over the x-axis.

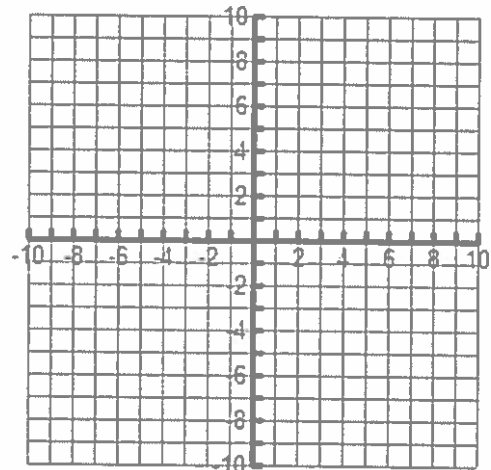
2. $f(x) = |x|$; shift to the right 1 unit, stretch horizontally by a factor of 3, and shift upward 10 units.

$$f(x) = \left| \frac{1}{3}(x-1) \right| + 10$$

Graph the following functions on graph paper. Use the parent function and a transformation table. Be sure to state the domain and range of your transformed graph.

3. $f(x) = -x^3 + 2$

reflect over x-axis
up 2

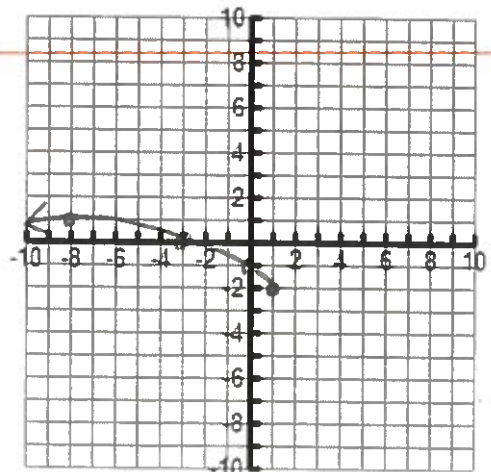


D: $(-\infty, \infty)$ R: $(-\infty, \infty)$

4. $f(x) = \sqrt{-x+1} - 2$

$$f(x) = \sqrt{-(x-1)} - 2$$

reflect over y-axis
right 1
down 2



D: $(-\infty, 1]$ R: $[-2, \infty)$

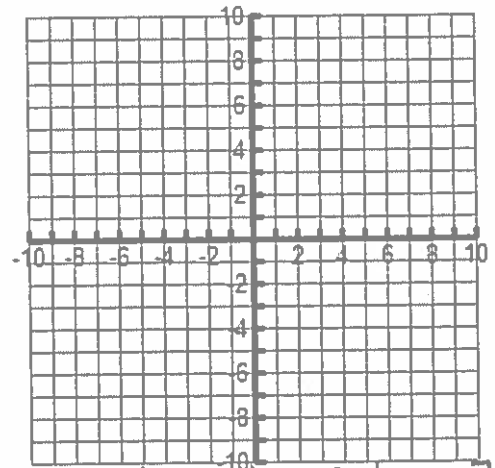
$$y = \sqrt{x}$$

x	y
0	0
1	1
4	2
9	3

5. $2y = -|2x - 4| + 6$

$$y = -\frac{1}{2}|2(x-2)| + 3$$

reflect over x-axis
 vertical shrink of $\frac{1}{2}$
 horizontal shrink of $\frac{1}{2}$
 right 2
 up 3



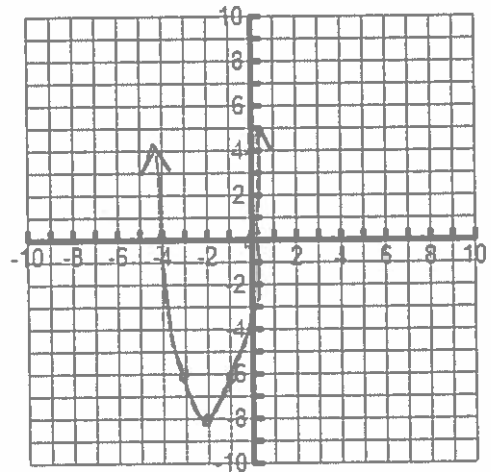
D: $(-\infty, \infty)$ R: $(-\infty, 3]$

6. $\frac{1}{2}y - 2 = (x + 2)^2 - 6$

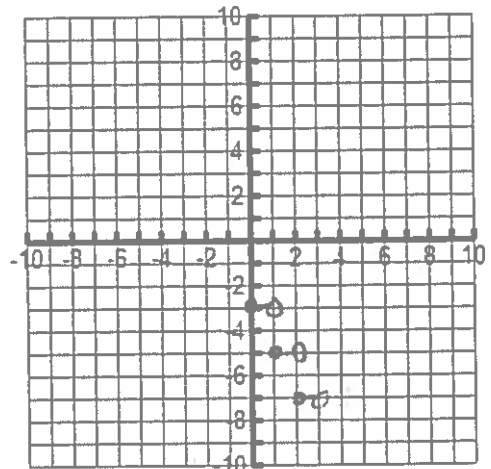
$$\frac{1}{2}y = (x+2)^2 - 4$$

$$y = 2(x+2)^2 - 8$$

vertical stretch of 2
 left 2
 down 8



7. $f(x) = -2[x] - 3$

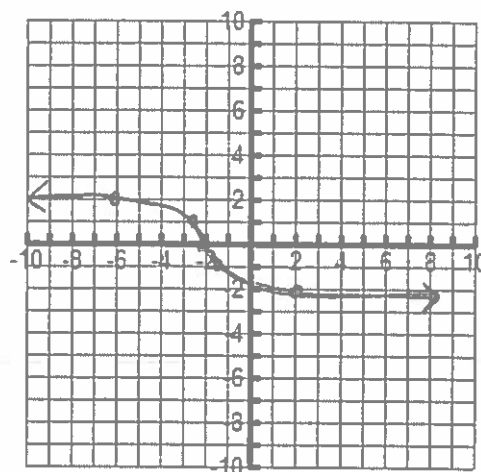


D: $(-\infty, \infty)$ R: $\{y \mid y = \text{integer}\}$

$$8. y = -\sqrt[3]{2x+4}$$

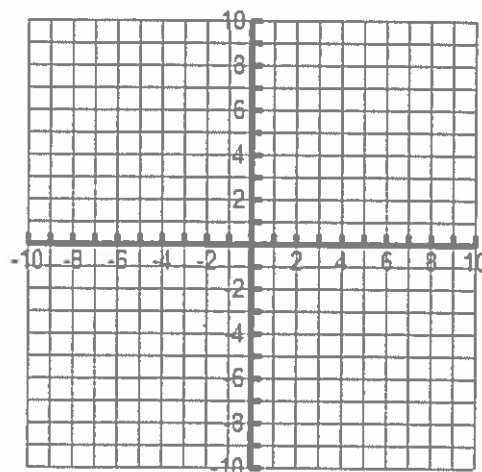
$$y = \sqrt[3]{x}$$

X	y
-8	-2
-1	-1
0	0
1	1
8	2



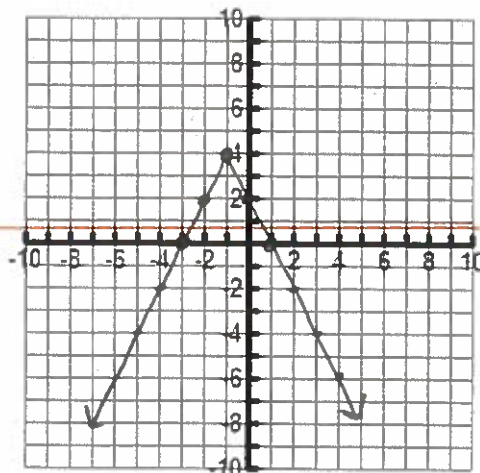
$$9. y = \sqrt{3(x-1)} + 3$$

horizontal shrink of $\frac{1}{3}$
right 1
up 3



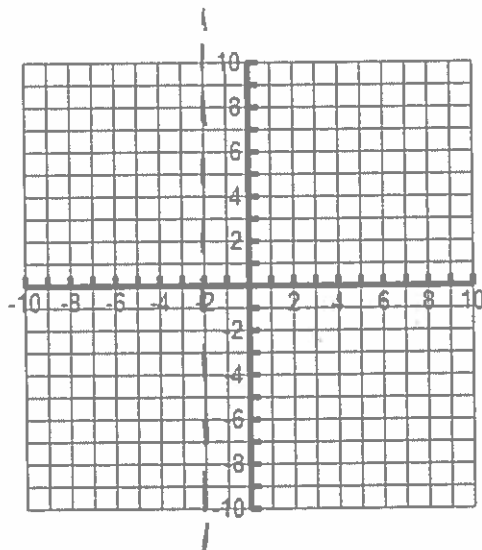
D: $[1, \infty)$ R: $[3, \infty)$

$$10. 3 - 2y = 4|x + 1| - 5$$



Graph the following piecewise function.

$$11. f(x) = \begin{cases} |x + 3|, & x < -2 \\ (x - 1)^2, & x \geq -2 \end{cases}$$



Suppose $(-3, 5)$ is a point on the graph of $y = g(x)$.

12. What point is on the graph of $y = g(x + 1) - 3$?

$$(-4, 2)$$

left 1 down 3
 $(x-1)$ $(y-3)$

13. What point is on the graph of $y = -3g(x - 4) + 3$?

$$(1, -12)$$

14. What point is on the graph of $y = g(3x + 9)$?

$$y = g(3(x+3))$$

horizontal shrink of $\frac{1}{3}$ $(\frac{1}{3}x)$

left 3 $(x-3)$