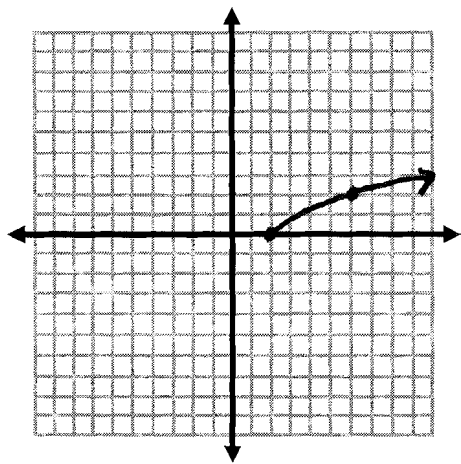


Using the graph of Square Root function as a guide, describe the transformation and graph each function. Then, identify the domain and range in INTERVAL NOTATION.

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

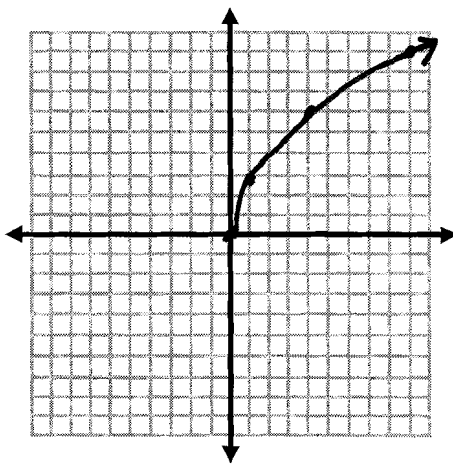


Domain: $[2, \infty)$

Range: $[0, \infty)$

Transformation:
 Right 2

2) $f(x) = 3\sqrt{x}$

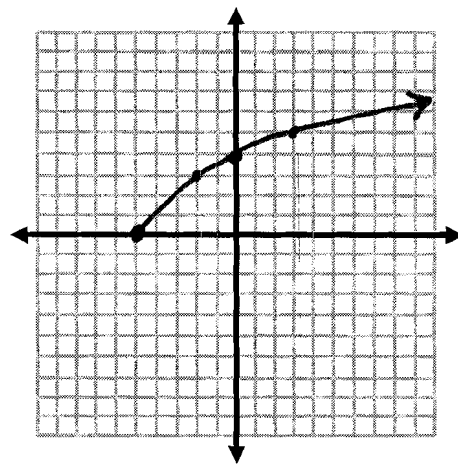


Domain: $[0, \infty)$

Range: $[0, \infty)$

Transformation:
 Vertically Stretched
 by 3

3) $f(x) = \sqrt{3(x+5)}$

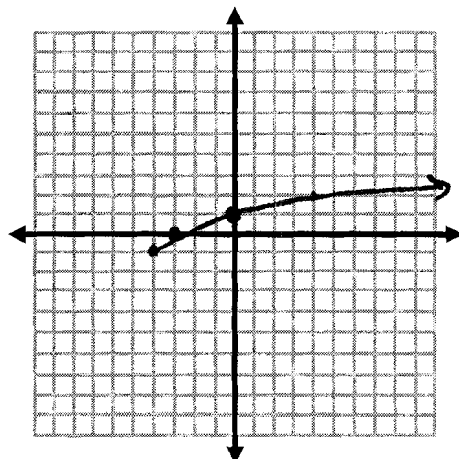


Domain: $[-4, \infty)$

Range: $[0, \infty)$

Transformation:
 Horizontally compressed by $\frac{1}{3}$
 5 left
 stretched by 3

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

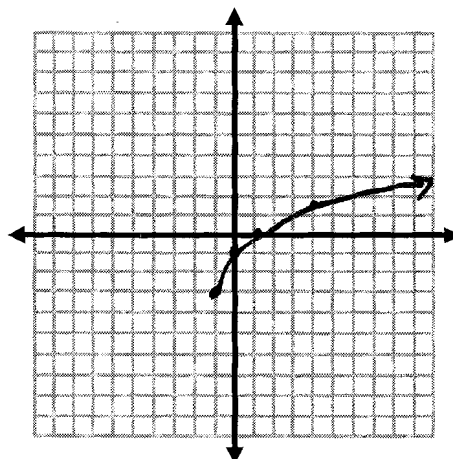


Domain: $[-4, \infty)$

Range: $[-1, \infty)$

Transformation:
 4 units left
 1 unit down

5) $f(x) = 2\sqrt{x+1} - 3$



Domain: $[-1, \infty)$

Range: $[-3, \infty)$

Transformation:
 1 unit Left
 3 units Down

Use the description to write the square-root function, g .

6) The parent function is compressed vertically by a factor of $1/3$ and translated 3 units to the left.

$$g(x) = \frac{1}{3}\sqrt{x+3}$$

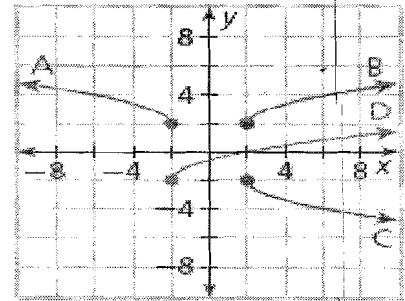
7) The parent function is reflected across the x -axis and translated 1 unit to the left and 4 units down.

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

Match each function to its graph.

8) $f(x) = \sqrt{x+2} - 2$ **D** 9) $f(x) = \sqrt{x-2} + 2$ **B**

10) $f(x) = \sqrt{-x-2} + 2$ **A** 11) $f(x) = -\sqrt{x-2} - 2$ **C**



12) The speed in miles per hour of a tsunami can be modeled by the function $s(d) = 3.86\sqrt{d}$, where d is the average depth in feet of the water over the tsunami travels. Predict the speed of a tsunami over water with a depth of 1500 feet.

$$\approx 150 \text{ mi/hr.}$$

8-8: Solving Radical Equations (Page 1)

Date _____

Period _____

Solve each equation. If you get extraneous roots, you must state them in your answer. Show all your work on a separate sheet of notebook paper.

1) $\sqrt{x-9} = 4$

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

3) $8\sqrt{10x-7} = 9$

4) $\sqrt{-2x+3} - 2 = 10$

5) $\sqrt{3x+4} = -4$

6) $\sqrt{2x-4} = x-2$

7) $\sqrt{x} + 6 = x$

8) $\sqrt{x^2 + 13x + 37} = 1$

9) $\sqrt{x^2 - x + 1} = x + 1$

10) In an amusement park, a rider is suspended by a cable swinging back and forth like a pendulum from a tall tower. A rider's maximum speed v (in meters per second) occurs at the bottom of each swing and can be given using the equation, $v = \sqrt{2gh}$ where h is the height (in meters) at the top of each swing and g is the acceleration due to gravity ($g = 9.8 \text{ m/sec}^2$). If the maximum speed was 15 meters per second, what was the rider's height at the top of the swing?

12) Create an example of a radical equation that has an extraneous solution.