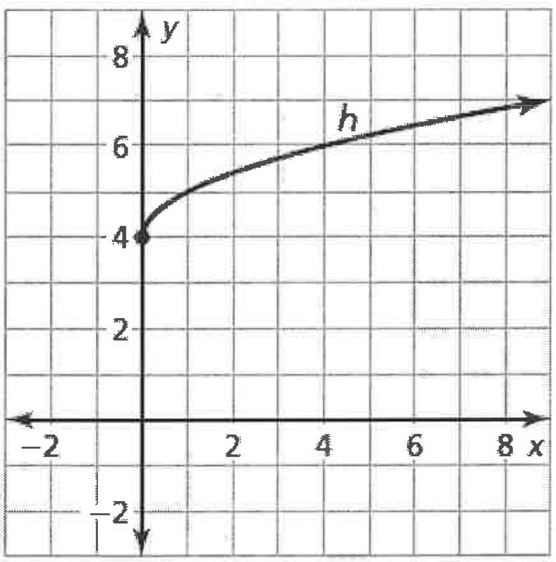
ANSWER PRESENTATION TOOL

Algebra 2 - Student Edit 5 3 - Practice 1-55 ALL EVEN Show Solu

ODD

1. Make a table of values and sketch the graph.

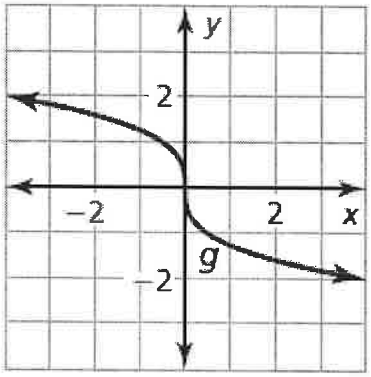
x	0	1	2	3	4
y	4	5	5.41	5.73	6



The radicand of a square root must be nonnegative. So, the domain is $x \geq 0$. The range is $y \geq 4$.

3. Make a table of values and sketch the graph.

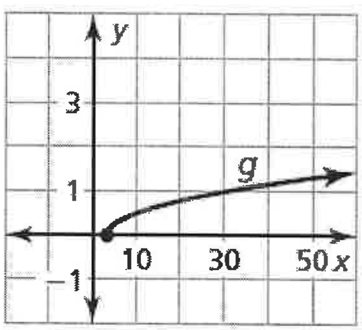
x	-4	-2	0	2	4
y	2	1.59	0	-1.59	-2



The radicand of a cube root can be any real number. So, the domain and range are all real numbers.

5. Make a table of values and sketch the graph.

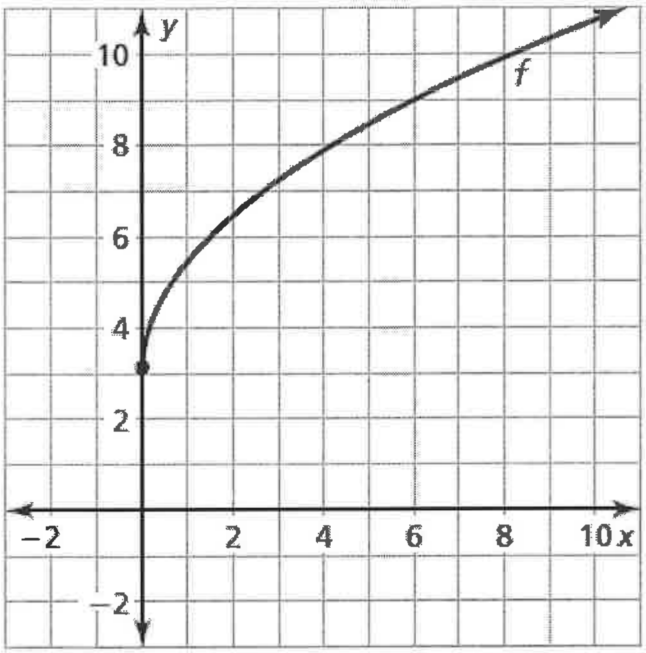
x	3	4	5	6	7
y	0	0.2	0.28	0.35	0.4



The radicand of a square root must be nonnegative. So, the domain is $x \geq 3$. The range is $y \geq 0$.

7. Make a table of values and sketch the graph.

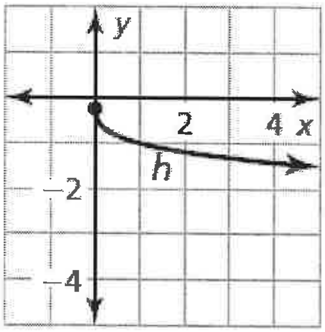
x	0	1	2	3	4
y	3	5.45	6.46	7.24	7.89



The radicand of a square root must be nonnegative. So, the domain is $x \geq 0$. The range is $y \geq 3$.

9. Make a table of values and sketch the graph.

x	0	1	2	3	4
y	0	-1	-1.19	-1.32	-1.41



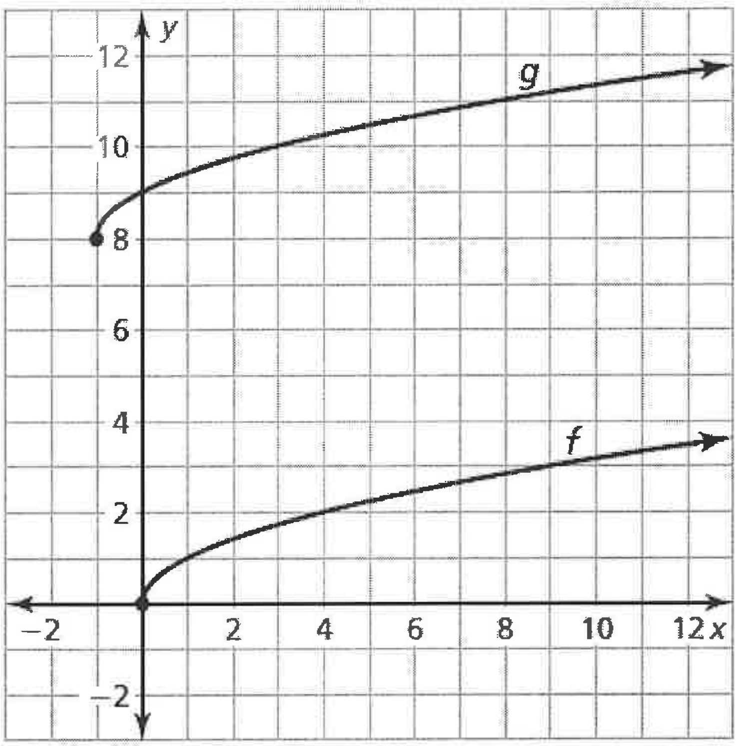
The radicand of a fourth root must be nonnegative. So, the domain is $x \geq 0$. The range is $y \leq 0$.

11. B; The function is a translation 3 units left of the parent square root function. The domain is $x \geq -3$ and the range is $y \geq 0$.

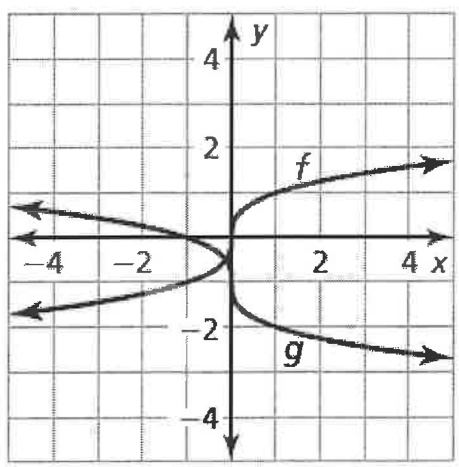
13. F; The function is a translation 3 units right of the parent square root function. The domain is $x \geq 3$ and the range is $y \geq 0$.

15. E; The function is a translation 3 units down and 3 units left of the parent square root function. The domain is $x \geq -3$ and the range is $y \geq -3$.

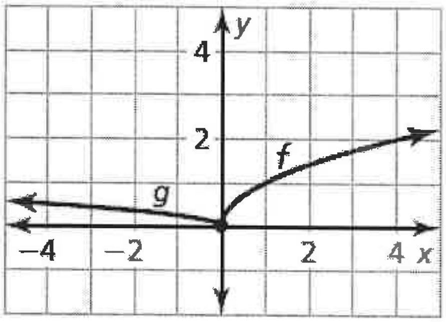
17. Notice that the function is of the form $g(x) = \sqrt{x - h} + k$, where $h = -1$ and $k = 8$. So, the graph of g is a translation 1 unit left and 8 units up of the graph of f.



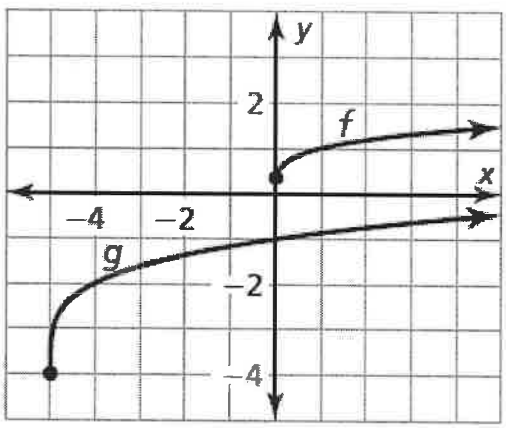
19. Notice that the function is of the form $g(x) = -\sqrt[3]{x} + k$, where $k = -1$. So, the graph of g is a reflection in the x-axis followed by a translation 1 unit down of the graph of f.



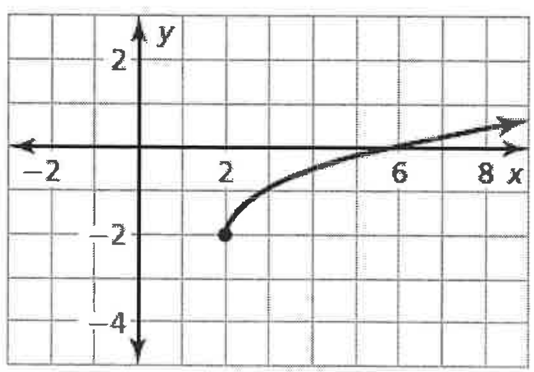
21. Notice that the function is of the form $g(x) = a(-x)^{1/2}$, where $a = \frac{1}{4}$. So, the graph of g is a reflection in the y-axis followed by a vertical shrink by a factor of $\frac{1}{4}$ of the graph of f.



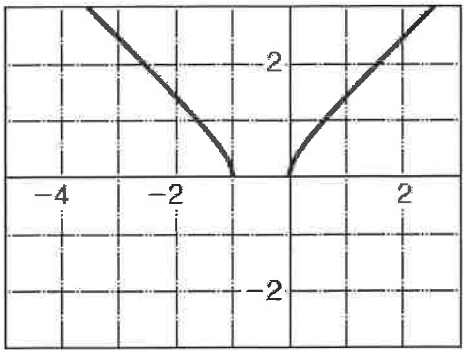
23. Notice that the function is of the form $g(x) = a\sqrt[4]{x-h} + k$, where $a = 2$, $h = -5$, and $k = -4$. So the graph of g is a vertical stretch by a factor of 2 followed by a translation 5 units left and 4 units down of the graph of f.



25. The graph was translated 2 units left but it should be translated 2 units right.

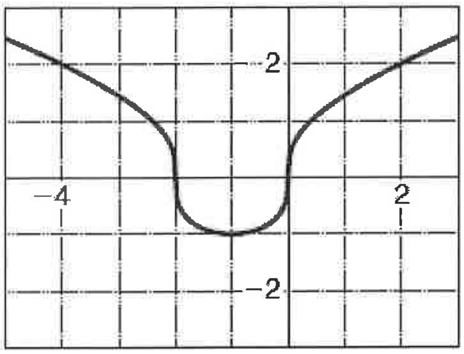


27.



The domain is $x \leq -1$ and $x \geq 0$. The range is $y \geq 0$.

29.



The domain is all real numbers. To find the range, find the x-coordinate of the vertex of the polynomial under the radical.

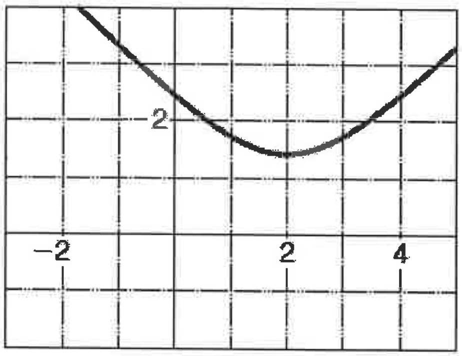
$$x = -\frac{b}{2a} = -\frac{2}{2(1)} = -1$$

Substitute into the function to find the vertex.

$$f(-1) = \sqrt[3]{(-1)^2 + 2(-1)} = \sqrt[3]{1 - 2} = \sqrt[3]{-1} = -1$$

So, the range of the function is $y \geq -1$.

31.



The domain is all real numbers. To find the range, find the x-coordinate of the vertex of the polynomial under the radical.

$$x = -\frac{b}{2a} = -\frac{-4}{2(1)} = 2$$

Substitute into the function to find the vertex.

$$f(2) = \sqrt{2^2 - 4(2) + 6} = \sqrt{2}$$

So, the range of the function is $y \geq \sqrt{2}$.

33. $M(x) = 0.6 \cdot 8\sqrt{x} = 4.8\sqrt{x}$

Next, find $M(25)$.

$M(25) = 4.8\sqrt{25} = 24$

An object dropped from a height of 25 feet has a velocity of 24 feet per second right before it hits the ground on Mars.

35. Step 1 First write a function h that represents the vertical stretch of f.

$$h(x) = 2f(x)$$
$$= 2(\sqrt{x} + 3)$$
$$= 2\sqrt{x} + 6$$

Step 2 Then write a function g that represents the translation of h.

$$g(x) = h(x) + 2$$
$$= (2\sqrt{x} + 6) + 2$$
$$= 2\sqrt{x} + 8$$

The transformed function is $g(x) = 2\sqrt{x} + 8$.

37. Step 1 First write a function h that represents the horizontal shrink of f.

$$h(x) = f\left(\frac{3}{2}x\right)$$
$$= \sqrt{6\left(\frac{3}{2}x\right)}$$
$$= \sqrt{9x}$$

Step 2 Then write a function g that represents the translation of h.

$$g(x) = h(x + 4)$$
$$= \sqrt{9(x + 4)}$$
$$= \sqrt{9x + 36}$$

The transformed function is $g(x) = \sqrt{9x + 36}$.

39. Step 1 First write a function h that represents the vertical shrink of f.

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

Step 2 Then write a function g that represents the translation of h.

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

The transformed function is $g(x) = 2\sqrt{x + 1}$.

41. The graph of g is a translation 3 units left of the graph of f.

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

43. The graph of g is a reflection in the x-axis and a vertical stretch by a factor of 2 followed by a translation 5 units left of the graph of f.

$$g(x) = -2f(x + 5)$$
$$= -2\left(-\sqrt{(x + 5)^2 - 2}\right)$$
$$= 2\sqrt{(x + 5)^2 - 2}$$
$$= 2\sqrt{x^2 + 10x + 25 - 2}$$
$$= 2\sqrt{x^2 + 10x + 23}$$

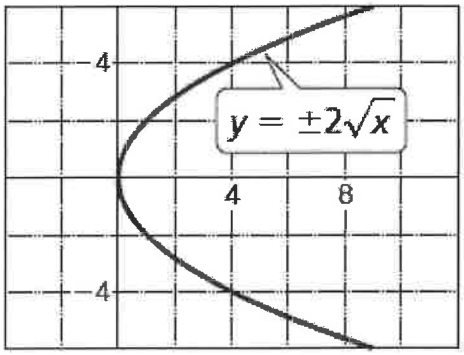
45. Step 1 Solve for y.

$$\frac{1}{4}y^2 = x$$
$$y^2 = 4x$$
$$y = \pm 2\sqrt{x}$$

Step 2 Graph both radical functions.

$$y_1 = 2\sqrt{x}$$
$$y_2 = -2\sqrt{x}$$

The vertex is (0, 0) and the parabola opens right.



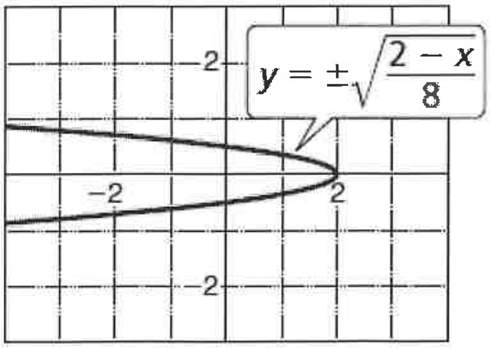
47. Step 1 Solve for y.

$$-8y^2 + 2 = x$$
$$-8y^2 = x - 2$$
$$y^2 = -\frac{1}{8}(x - 2)$$
$$y = \pm\frac{1}{2}\sqrt{-\frac{1}{2}(x - 2)}$$

Step 2 Graph both radical functions.

$$y_1 = \frac{1}{2}\sqrt{-\frac{1}{2}(x - 2)}$$
$$y_2 = -\frac{1}{2}\sqrt{-\frac{1}{2}(x - 2)}$$

The vertex is (2, 0) and the parabola opens left.



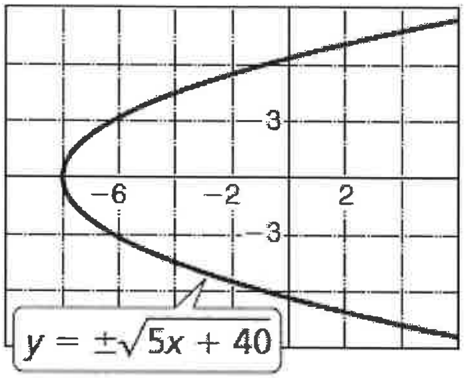
49. Step 1 Solve for y.

$$x + 8 = \frac{1}{5}y^2$$
$$5x + 40 = y^2$$
$$y = \pm\sqrt{5x + 40}$$

Step 2 Graph both radical functions.

$$y_1 = \sqrt{5x + 40}$$
$$y_2 = -\sqrt{5x + 40}$$

The vertex is $(-8, 0)$ and the parabola opens right.



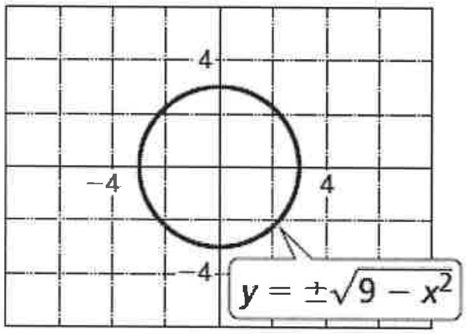
51. Step 1 Solve for y.

$$x^2 + y^2 = 9$$
$$y^2 = 9 - x^2$$
$$y = \pm\sqrt{9 - x^2}$$

Step 2 Graph both radical functions using a square viewing window.

$$y_1 = \sqrt{9 - x^2}$$
$$y_2 = -\sqrt{9 - x^2}$$

The radius is 3 units.



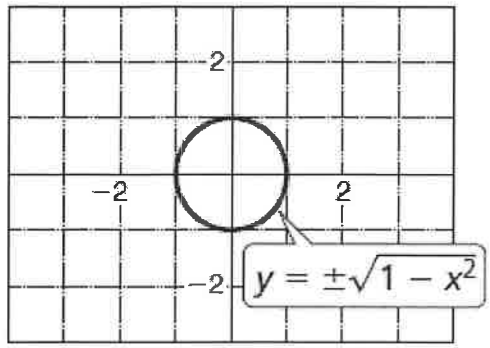
The x-intercepts are ±3. The y-intercepts are ±3.

53. Step 1 Solve for y.

$$1 - y^2 = x^2$$
$$y^2 + x^2 = 1$$
$$y = \pm\sqrt{1 - x^2}$$

Step 2 Graph both radical functions using a square viewing window.

$$y_1 = \sqrt{1 - x^2}$$
$$y_2 = -\sqrt{1 - x^2}$$



The radius is 1 unit.

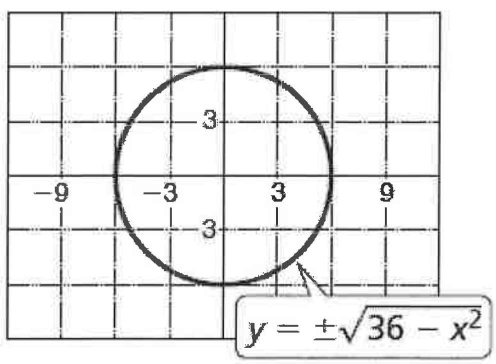
The x-intercepts are ± 1. The y-intercepts are ± 1.

55. Step 1 Solve for y.

$$-y^2 = x^2 - 36$$
$$y^2 = 36 - x^2$$
$$y = \pm\sqrt{36 - x^2}$$

Step 2 Graph both radical functions using a square viewing window.

$$y_1 = \sqrt{36 - x^2}$$
$$y_2 = -\sqrt{36 - x^2}$$



The radius is 6 units. The x-intercepts are ± 6. The y-intercepts are ± 6.