6 CHAPTER REVIEW

6.5 Graph Square Root and Cube Root Functions

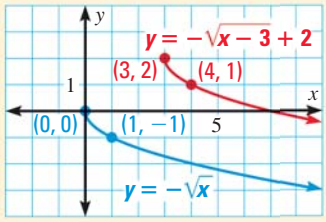
pp. 446–451

EXAMPLE

Graph $y = -\sqrt{x-3} + 2$.

Sketch the graph of $y = -\sqrt{x}$. Notice that it begins at the origin and passes through the point $(1, -1)$.

For $y = -\sqrt{x-3} + 2$, $h = 3$, and $k = 2$. So, shift the graph of $y = -\sqrt{x}$ right 3 units and up 2 units. The resulting graph begins at the point $(3, 2)$ and passes through the point $(4, 1)$.

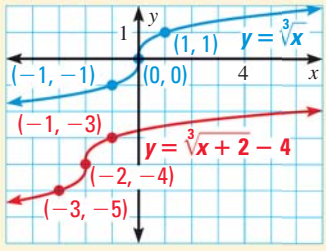


EXAMPLE

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

Sketch the graph of $y = \sqrt[3]{x}$. Notice that it passes through the points $(-1, -1)$, $(0, 0)$, and $(1, 1)$.

For $y = \sqrt[3]{x+2} - 4$, $h = -2$ and $k = -4$. So, shift the graph of $y = \sqrt[3]{x}$ left 2 units and down 4 units. The resulting graph passes through the points $(-3, -5)$, $(-2, -4)$, and $(-1, -3)$.



EXAMPLES 4 and 5 on p. 448 for Exs. 27–29

EXERCISES

Graph the function. Then state the domain and range.

27. $y = \sqrt{x+3} + 5$ **28.** $y = 3\sqrt{x+1} - 4$ **29.** $y = \sqrt[3]{x-4} - 5$

6.6 Solve Radical Equations

pp. 452–459

EXAMPLE

Solve $\sqrt{4x+9} = 5$.

$\sqrt{4x+9} = 5$ **Write original equation.**

$(\sqrt{4x+9})^2 = 5^2$ **Square each side to eliminate the radical.**

$4x + 9 = 25$ **Simplify.**

$4x = 16$ **Subtract 9 from each side.**

$x = 4$ **Divide each side by 4.**

CHECK Check $x = 4$ in the original equation.

$\sqrt{4x+9} = \sqrt{4(4)+9} = \sqrt{25} = 5$ ✓

EXAMPLES 1, 3, and 5 on pp. 452–454 for Exs. 30–32

EXERCISES

Solve the equation. Check for extraneous solutions.

30. $\sqrt[3]{5x-4} = 2$ **31.** $3x^{3/4} = 24$ **32.** $\sqrt{x^2-10} = \sqrt{3x}$