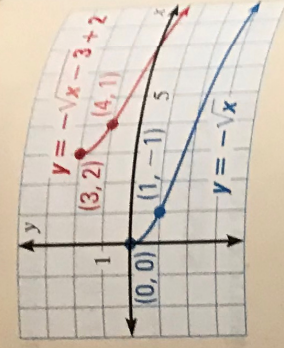


6.5



EXAMPLE
Graph $y = -\sqrt{x-3} + 2$. Notice that it begins at the origin and passes through the point $(1, -1)$.

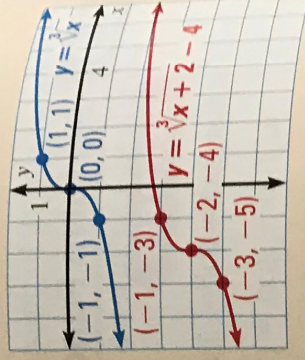
Sketch the graph of $y = -\sqrt{x}$. Notice that it begins at the origin and passes through the point $(1, -1)$. For $y = -\sqrt{x-3} + 2$, $h = 3$, and $k = 2$. So, shift the graph right 3 units and up 2 units. The resulting graph begins at the point $(3, 2)$ and passes through the point $(4, 1)$.

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 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

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.

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

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. $\sqrt{x^2-10} = \sqrt{3x}$