Simplify the radical expression.

1. $-3\sqrt{160}$

2. $\sqrt{64}$

3. $2\sqrt{360c^6d^2}$

4. $\sqrt{\dfrac{3}{100p^2}}$

7. $\dfrac{5\sqrt{4}}{\sqrt{8}}$

5. $\sqrt{\dfrac{360}{10}}$

Simplify the expression.

8. $2\sqrt{5}+4\sqrt{5}$

Simplify the radical expression by rationalizing the denominator.

9. $4\sqrt{7}-3\sqrt{28}$

6. $\dfrac{4}{\sqrt{21}}$

10. $(10+\sqrt{7})(10-\sqrt{7})$

11. $\sqrt{6}\left(\sqrt{21}+9\right)$

12. $5\sqrt{7}-3\sqrt{63}$

17. $f(x)=\sqrt{x}-3$

Solve the equation. Check your solution.

13. $-4=\sqrt{h}-5$

Evaluate:

18. $\sqrt[3]{-216}$

14. $\sqrt{r+4}=7$

19. $\sqrt[3]{-64}$

15. $\sqrt{10x-9}=\sqrt{x+9}$

20. $\sqrt[3]{216}$

Graph:

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

Solve the equation. Identify any extraneous solutions.

21. $x=\sqrt{3x+18}$

22. $b = \sqrt{7b}$

Simplify the rational expression.

23. $\dfrac{4x - 32}{4x + 24}$

24. $\dfrac{6x^3}{x^3 - 2x^4}$

25. $\dfrac{x^2 - 9x + 18}{x^2 - 13x + 42}$

26. Solve: $2\sqrt[3]{8x} + 9 = 5$

27. Simplify $\dfrac{4\sqrt{6}}{\sqrt{30}}$ by rationalizing the denominator.
Show your work.

28. The sales of a certain product after an initial release can be found by the equation
$s = 16\sqrt{3t} + 25$, where s represents the total sales (in thousands) and t represents the time in weeks after release.
a. Make a table of values.
b. Graph the function.
c. Use the graph to estimate the sales 7 weeks after release.

29. Make a table of values and graph the function.
$f(x) = \sqrt{x + 4} - 4$

30. Simplify: $\left(\sqrt[7]{9}\right)^7$

31. Simplify: $\left(\dfrac{1}{121}\right)^{-\frac{1}{2}}$

32. Solve the equation for r. $h = \sqrt[3]{\pi r}$

33. The height of the Dames Point bridge (officially named the Napoleon Bonaparte Broward Bridge) in Jacksonville is 175 feet above the ground. To find the distance you can can see the horizon use the formula $d = \sqrt{1.5h}$ to approximate the distance d in miles to the horizon when h is the height of the viewer's eyes above the ground in feet. Round to the nearest mile.

Identify the choice that best completes the statement or answers the question.

The function r(x) represents the radius of a circle for a given area x. A graph of the function is shown in the figure.
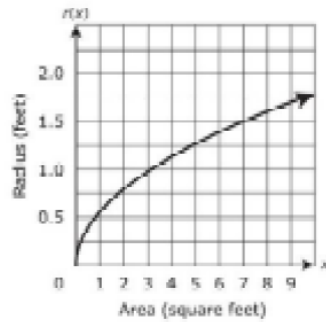
34. According to the graph what is the approximate average rate of change in the radius of the circle as the area increases from 3 square feet to 7 square feet?

   a.   0.125 foot per square foot   c.   0.5 foot per square foot
   b.   0.25 fot per square foot   d.   8 feet per square foot

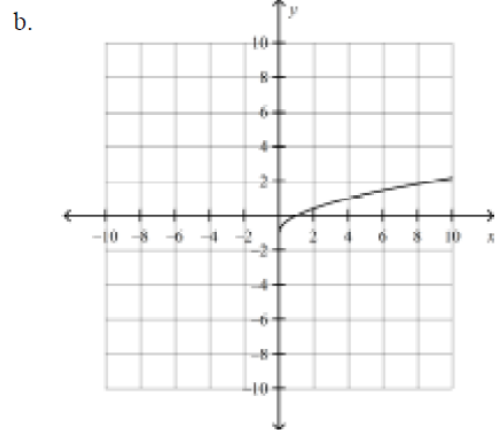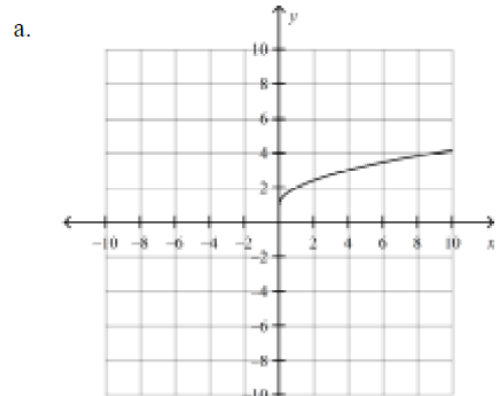35. Which radical is equivalent to: $a^{\frac{1}{4}} \cdot a^{\frac{1}{4}}$

   a. $\sqrt{a}$
   b. $\sqrt[4]{a}$
   c. $\sqrt[4]{a^2}$
   d. $\sqrt[3]{a^4}$
   e.   None of these

36. Find the domain of $y = 4\sqrt{4x+2}$.
   a. $x \geq -2$
   b. $x \geq -\dfrac{1}{2}$
   c. $x > \dfrac{1}{2}$
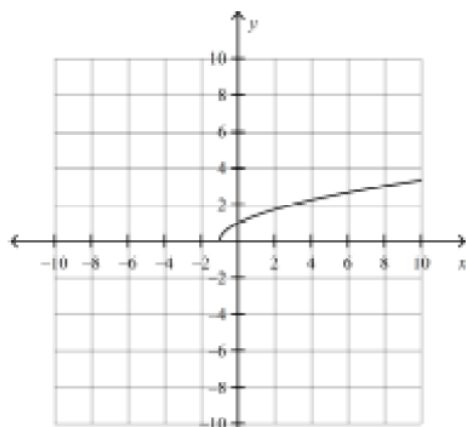   d. $x \geq \dfrac{1}{2}$

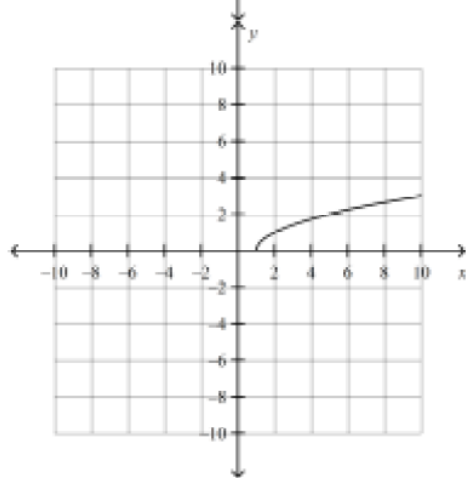**Match the function with its graph.**

37. $y = \sqrt{x-1}$

a.

b.
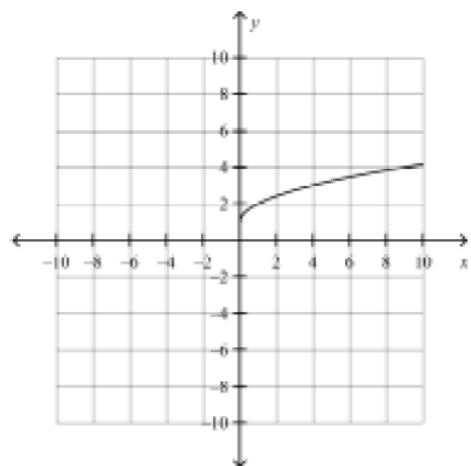
Match the function with its graph.

37. $y = \sqrt{x-1}$

a.

c.

d.

b.