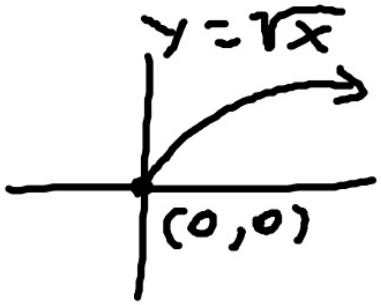
Graph each function. Compare to the parent graph. State the domain and range. (Lesson 10-1)

1. $y = 2\sqrt{x}$ **1–6. See Ch. 10 Answer Appendix.**
2. $y = -4\sqrt{x}$
3. $y = \frac{1}{2}\sqrt{x}$
4. $y = \sqrt{x} - 3$
5. $y = \sqrt{x - 1}$
6. $y = 2\sqrt{x - 2}$



14. **MULTIPLE CHOICE** Which expression is equivalent to $\sqrt{\frac{16}{32}}$? (Lesson 10-2) **G**

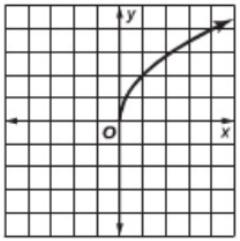
F $\frac{1}{2}$

G $\frac{\sqrt{2}}{2}$

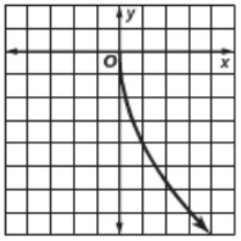
H 2

J 4

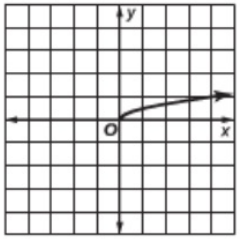
1. stretched vertically; D = {x | x ≥ 0}, R = {y | y ≥ 0}



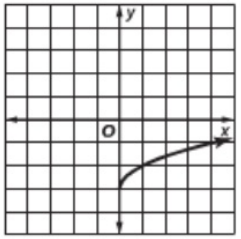
2. vertical stretch of $y = \sqrt{x}$ and reflection across the x-axis D = {x | x ≥ 0}, R = {y | y ≤ 0}



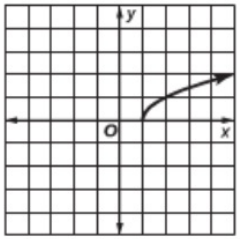
3. compressed vertically; D = {x | x ≥ 0}, R = {y | y ≥ 0}



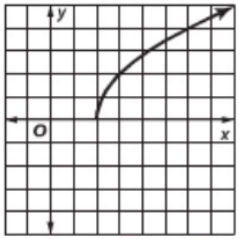
4. translation down 3 units; D = {x | x ≥ 0}, R = {y | y ≥ −3}



5. translation right 1 unit; D = {x | x ≥ 1}, R = {y | y ≥ 0}



6. stretched vertically and translated right 2 units; D = {x | x ≥ 2}, R = {y | y ≥ 0}



6. $y = 2\sqrt{x-2}$

7. **MULTIPLE CHOICE** The length of the side of a square is given by the function $s = \sqrt{A}$, where A is the area of the square. What is the length of the side of a square that has an area of 121 square inches? (Lesson 10-1) **C**

A 121 inches
C 11 inches
B 44 inches
D 10 inches

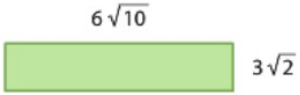
Simplify each expression. (Lesson 10-2)

8. $2\sqrt{25}$ **10**
9. $\sqrt{12} \cdot \sqrt{8}$ **$4\sqrt{6}$**
10. $\sqrt{72xy^5z^6}$ **$6y^2|z^3|\sqrt{2xy}$**
11. $\frac{3}{1+\sqrt{5}}$ **$\frac{-3+3\sqrt{5}}{4}$**
12. $\frac{1}{5\sqrt{7}}$ **$\frac{5+\sqrt{7}}{18}$**

Simplify each expression. (Lesson 10-3)

15. $3\sqrt{2} + 5\sqrt{2}$ **$8\sqrt{2}$**
16. $\sqrt{11} - 3\sqrt{11}$ **$-2\sqrt{11}$**
17. $6\sqrt{2} + 4\sqrt{50}$ **$26\sqrt{2}$**
18. $\sqrt{27} - \sqrt{48}$ **$-\sqrt{3}$**
19. $4\sqrt{3}(2\sqrt{6})$ **$24\sqrt{2}$**
20. $3\sqrt{20}(2\sqrt{5})$ **60**
21. $(\sqrt{5} + \sqrt{7})(\sqrt{20} + \sqrt{3})$ **$10 + \sqrt{15} + 2\sqrt{35} + \sqrt{21}$**

22. **GEOMETRY** Find the area of the rectangle. (Lesson 10-3) **$36\sqrt{5}$**



Solve each equation. Check your solution. (Lesson 10-4)

23. $\sqrt{5x} - 1 = 4$ **5**
24. $\sqrt{a-2} = 6$ **38**

9. $\sqrt{12} \cdot \sqrt{8}$ $4\sqrt{6}$

10. $\sqrt{72xy^5z^6}$ $6y^2|z^3|\sqrt{2xy}$

11. $\frac{3}{1+\sqrt{5}}$ $\frac{-3+3\sqrt{5}}{4}$

12. $\frac{1}{5\sqrt{7}}$ $\frac{5+\sqrt{7}}{18}$

13. **SATELLITES** A satellite is launched into orbit 200 kilometers above Earth. The orbital velocity of a satellite is given by the formula $v = \sqrt{\frac{Gm_E}{r}}$. v is velocity in meters per second, G is a given constant, m_E is the mass of Earth, and r is the radius of the satellite's orbit in meters. (Lesson 10-2)

   a. The radius of Earth is 6,380,000 meters. What is the radius of the satellite's orbit in meters? **6,580,000 m**

   b. The mass of Earth is 5.97×10^{24} kilograms, and the constant G is 6.67×10^{-11} N $\cdot \frac{m^2}{kg^2}$ where N is in Newtons. Use the formula to find the orbital velocity of the satellite in meters per second. **about 7779 m/s**

36√5

Solve each equation. Check your solution. (Lesson 10-4)

23. $\sqrt{5x} - 1 = 4$ **5**

24. $\sqrt{a-2} = 6$ **38**

25. $\sqrt{15-x} = 4$ **−1**

26. $\sqrt{3x^2 - 32} = x$ **4**

27. $\sqrt{2x-1} = 2x - 7$ **5**

28. $\sqrt{x+1} + 2 = 4$ **3**

29. **GEOMETRY** The lateral surface area S of a cone can be found by using the formula $S = \pi r\sqrt{r^2 + h^2}$, where r is the radius of the base and h is the height of the cone. Find the height of the cone. (Lesson 10-4) **about 12.5 in.**