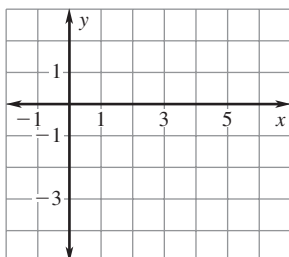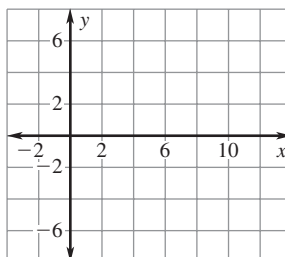**CHAPTER 11**

Chapter Test C
For use after Chapter 11

Graph the function and identify the domain and range. Then compare the graph with the graph $y = \sqrt{x}$.

1. $y = 3\sqrt{x + 1} - 4$

2. $y = -\dfrac{4}{5}\sqrt{x - 4} + 2$

Answers

1. _____See left._____

_____

_____

_____

2. _____See left._____

_____

_____

_____

_____

In Exercises 3 and 4, use the following information.

The speed at which water travels through a pipe can be measured by the height to which the water shoots out an elbow in the pipe. If the elbow has a height of 10 centimeters, then the velocity (in centimeters per second) of the water can be modeled by the function $v = 44.3\sqrt{h + 10}$ where h is the height (in centimeters) of the water above the elbow.

3. Identify the domain and range of the function.

4. About how high should the water be above the elbow if the speed of the water is 250 centimeters per second?

3. _____

4. _____

_____

5. _____

6. _____

Simplify the expression.

5. $3\sqrt{90}$

6. $2a\sqrt{18a^3b^{10}}$

7. $4\sqrt{8} - 10\sqrt{2}$

8. $\sqrt{\dfrac{15x^6y^7}{3x^7y^9}}$

9. $(3\sqrt{x} - 2y)(5\sqrt{x} - 4y)$

10. $\dfrac{3}{5 + \sqrt{5}}$

7. _____

8. _____

9. _____

10. _____

In Exercises 11 and 12, use the following information.

The time t (in seconds) for a pendulum to complete one swing can be found using the equation $t = 2\pi\sqrt{\dfrac{L}{32}}$ where L is the length (in feet) of the pendulum.

11. Write the equation in simplified form.

12. Find the exact time it takes for a **4**-foot pendulum of a grandfather clock to complete one swing.

11. _____

12. _____

CHAPTER 11	**Chapter Test C** *continued*
	For use after Chapter 11

Solve the equation. Check for extraneous solutions.

Answers

13. $\sqrt{10x - 8} - 3\sqrt{x} = 0$

13. _____

14. $x - 3 - \sqrt{4x} = 0$

14. _____

15. $\sqrt{5x + 1} - 1 = x$

15. _____

In Exercises 16–18, use the following information.

16. _____

A museum curator can use the equation $C = 3x + \sqrt{50x + 9000}$ to find the cost C (in dollars) for taking x people on a tour of the museum.

17. _____

16. If the cost is $160, how many people went on a tour?

18. _____

17. If the curator charges each person $10 to go on the tour, write an expression for the revenue generated.

19. _____

18. How many people must go on the tour for the curator to break even?

_____

Find the unknown lengths.

20. _____

19.

5√3, x − 1, x + 4 (triangle)
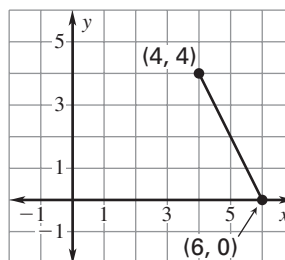
20.

3x + 4, x, 3x − 2 (triangle)

21. _____
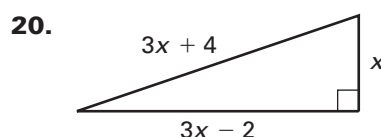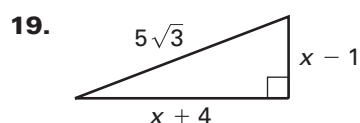
21. A sail has the shape of an isosceles triangle. The two equal side lengths are 36 inches and the third side is 54 inches. Find the area of the sail. Round your answer to the nearest tenth.

22. _____

_____

23. _____

The midpoint and an endpoint of a line segment are given. Find the other endpoint. Then find the length of the line segment.

_____

22. endpoint: $(2, 3)$; midpoint: $(-4, -6)$

24. _____

23. endpoint: $(-1, 5)$; midpoint: $(0, 4)$

25. _____

In Exercises 24–26, use the following graph.

26. _____

24. Find the slope of the line passing through the points.

25. Find the slope of line perpendicular to the line segment.

26. Write an equation of the perpendicular bisector of the line segment.

(graph showing points (4, 4) and (6, 0))