Lessons 1-1 to 1-4

Formative Assessment

Use the Mid-Chapter Quiz to assess students' progress in the first half of the chapter.

For problems answered incorrectly, have students review the lessons indicated in parentheses.

McGraw-Hill
eAssessment Customize and create multiple versions of your Mid-Chapter Quiz and their answer keys.

Additional Answers

6b. [0, 3.22]; Sample answer: The relevant domain represents the interval of time beginning when the ball was hit and ending when it reached the ground. Because time cannot be negative and the height of the ball is 0 when $t = 3.22$, $0 \leq t \leq 3.22$.

7. y-intercept: 0; zeros: $-4, 0, 4$;
$$x^3 - 16x = 0$$
$$x(x^2 - 16) = 0$$
$$x(x + 4)(x - 4) = 0$$
$$x = 0 \text{ or } x + 4 = 0 \text{ or } x - 4 = 0$$
$$x = -4 \qquad x = 4$$

8. y-intercept: 5; zero: 25;
$$5 - \sqrt{x} = 0$$
$$5 = \sqrt{x}$$
$$25 = x$$

9. $D = [0, \infty)$, $R = [0, \infty)$

10. $D = \{x \mid x \in \mathbb{R}\}$, $R = \{y \mid y \in \mathbb{Z}\}$

12. Continuous at $x = 5$; $f(5) = 2.5$, $\lim\limits_{x \to 5} f(x) = 2.5$, and $\lim\limits_{x \to 5} f(x) = f(5)$.

13. From the graph, it appears that $f(x) \to -\infty$ as $x \to \infty$, and $f(x) \to \infty$ as $x \to -\infty$.

14. From the graph, it appears that $f(x) \to 5$ as $x \to \infty$, and $f(x) \to 5$ as $x \to -\infty$.

16. f is decreasing on $(-\infty, 3)$ and increasing on $(3, \infty)$.

17. f is increasing on $(-\infty, -2)$, decreasing on $(-2, 1.5)$, and increasing on $(1.5, \infty)$.

Mid-Chapter Quiz
Lessons 1-1 through 1-4
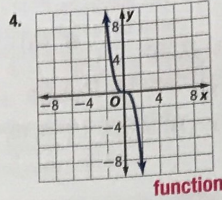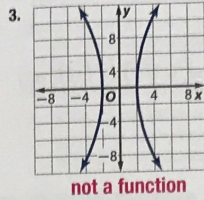
Determine whether each relation represents y as a function of x. (Lesson 1-1)

1. $3x + 7y = 21$
function

2.

x	-1	1	3	5	7
y	-1	3	7	11	15

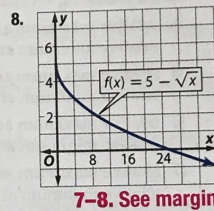**function**

3.

not a function

4.

function

5. Evaluate $f(2)$ for $f(x) = \begin{cases} x^2 + 3x & \text{if } x < 2 \\ x + 10 & \text{if } x \geq 2 \end{cases}$ (Lesson 1-1) **12**

6. **SPORTS** During a baseball game, a batter pops up the ball to the infield. After t seconds the height of the ball in feet can be modeled by $h(t) = -16t^2 + 50t + 5$. (Lesson 1-1)
  a. What is the baseball's height after 3 seconds? **11 ft**
  b. What is the relevant domain of this function? Explain your reasoning. **See margin.**

Use the graph of each function to find its y-intercept and zero(s). Then find these values algebraically. (Lesson 1-2)

7.

$f(x) = x^3 - 16x$

8.

$f(x) = 5 - \sqrt{x}$
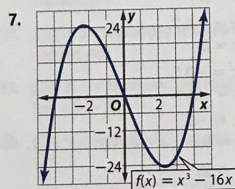
7–8. See margin.

Use the graph of h to find the domain and range of each function. (Lesson 1-2) **9–10. See margin.**

9.

10.
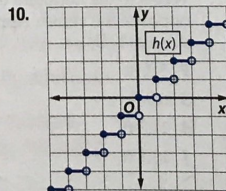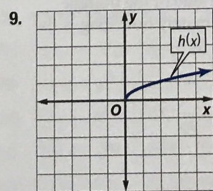
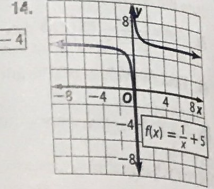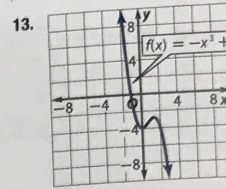
Determine whether each function is continuous at $x = 5$. Justify your answer using the continuity test. (Lesson 1-3)

11. $f(x) = \sqrt{x^2 - 36}$
Discontinuous at $x = 5$; $f(x)$ is undefined when $x = 5$.

12. $f(x) = \dfrac{x^2}{x + 5}$ **See margin.**

Use the graph of each function to describe its end behavior. (Lesson 1-3) **13–14. See margin.**

13.

$f(x) = -x^3 + 2x^2 - 4$

14.

$f(x) = \dfrac{1}{x} + 5$

15. **MULTIPLE CHOICE** The graph of $f(x)$ contains a(n) _____ discontinuity at $x = 3$. (Lesson 1-3) **D**

$f(x) = \begin{cases} \dfrac{x^2 - 9}{x - 3} & \text{if } x \neq 3 \\ 3 & \text{if } x = 3 \end{cases}$
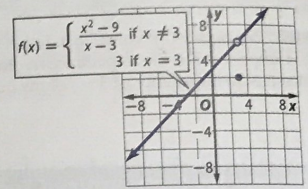
  A undefined
  B infinite
  C jump
  D removable

Use the graph of each function to estimate intervals to the nearest 0.5 unit on which the function is increasing, decreasing, or constant. (Lesson 1-4) **16–17. See margin.**

16.

$f(x) = x^2 - 6x + 5$

17.

$f(x) = x^3 + x^2 - 8x - 3$
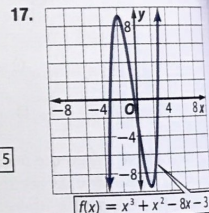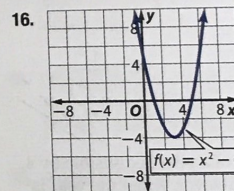
18. **PHYSICS** The height of an object dropped from 80 feet above the ground after t seconds is $f(t) = -16t^2 + 80$. What is the average speed for the object during the first 2 seconds after it is dropped? (Lesson 1-4) **32 ft/s**

InterventionPlanner

TIER 1 On Level **OL**	**TIER 2** Strategic Intervention **AL** approaching grade level
If students miss about 25% of the exercises or less,	**If** students miss about 50% of the exercises,
Then choose a resource:	**Then** choose a resource:
SE Lessons 1-1, 1-2, 1-3, and 1-4 TE Chapter Project, p. 2	Study Guide and Intervention, Chapter 1, pp. 5, 10, 16, and 21
connectED.mcgraw-hill.com Self-Check Quiz	connectED.mcgraw-hill.com Extra Examples, Homework Help