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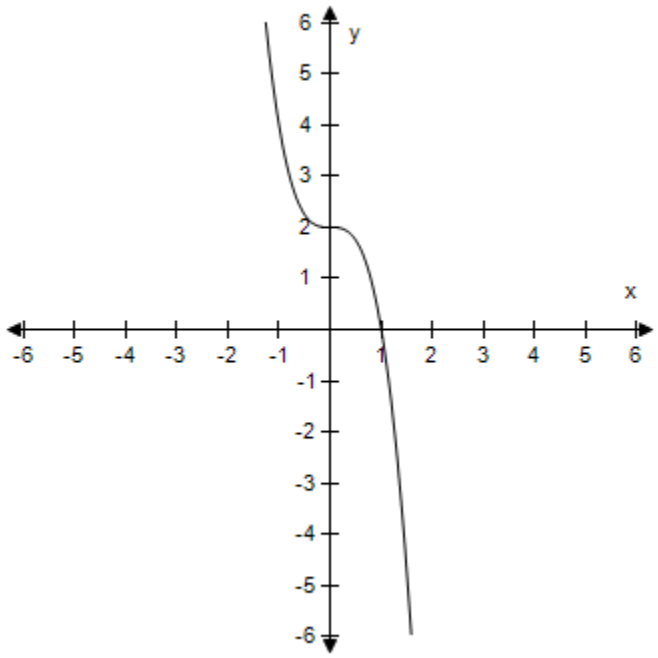
Chapter 2

1. A roof has a rise of 5 feet for every horizontal change of 7 feet (see figure). Find the inclination of the roof. Round your answers to one decimal place.

$a = 5,\ b = 7$

2. Graphically estimate the x- and y-intercepts of the graph.

$y = 2 - 2x^3$



3. The parent function $f(x) = \sqrt{x}$ is related to g. Describe the sequence of transformations from f to g.

$g(x) = \sqrt{x-3}$

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4. From the graph of the quadratic function $f(x) = -x^2 - 4x - 9$, determine the equation of the axis of symmetry.

5. Find the distance between the point and the line. Round your answer to four decimal places.

Point	Line
(5, 6)	$7x + y = 1$

6. Write an equation for the function that is described by the following characteristics.

The shape of $f(x) = x^2$, but moved eight units down, two units to the left, and then reflected in the *x*-axis.

7. Find the inclination Θ (in degrees) of the line with a slope of *m*. Round your answer to one decimal places.

$m = 0.6666666667$

8. Find all real value of *x* such that $f(x) = 0$.

$$f(x) = \frac{8x + 3}{5}$$

9. Evaluate $g(s + 10)$ if $g(y) = 11 - 4y$.

10. Use algebraic tests to check the following for symmetry with respect to the axes and the origin.

$10x + 4y^8 = 0$

11. Select the graph of *g*.

$g(x) = 5(x - 4)^3$

12. Find the value(s) of *x* for which $f(x) = g(x)$.

$f(x) = x^2 + 4x - 26$ $\quad$ $g(x) = 7x - 8$

13. A rectangle is bounded by the *x*-axis and the semicircle $y = \sqrt{49 - x^2}$ (see figure). Select the area *A* of the rectangle as a function of *x*, and determine the domain of the function.

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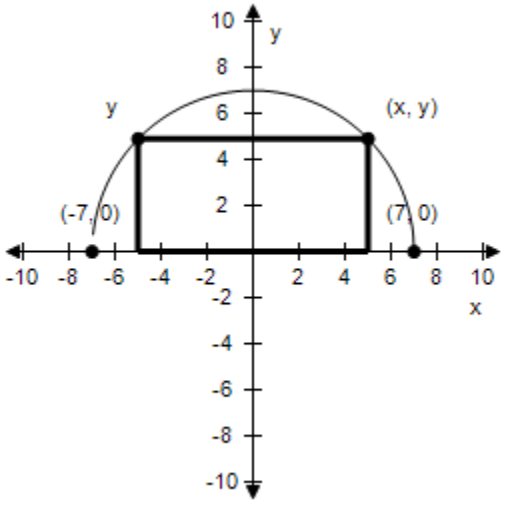

14. Determine the quadrant(s) in which (x, y) is located so that the condition(s) is (are) satisfied.

$x > 3$ and $y < 0$

15. Find the angle Θ (in radians and degrees) between the lines. Round your answer to four decimal places for radians and round your answer to one decimal places for degree.

$x - y = 10$
$3x - 2y = 1$

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Chapter 2

Answer Key

1. $\Theta \approx 35.5^\circ$

2. x-intercept: (1, 0)
y-intercept: (0, 2)

3. Horizontal shift three units to the right.

4. $x = -2$

5. $d \approx 5.7540$

6. $g(x) = 8 - (x + 2)^2$

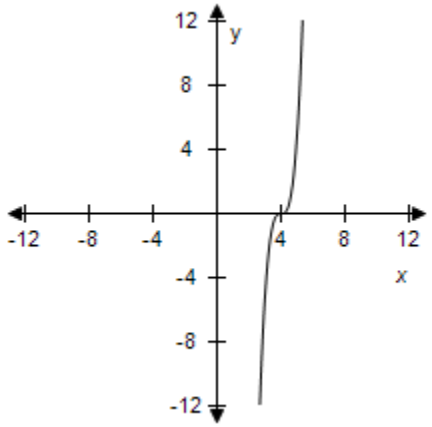
7. $\Theta \approx 33.7^\circ$

8. $x = -\frac{3}{8}$

9. $g(s + 10) = -29 - 4s$

10. Symmetric with respect to the x-axis.

11.



12. $x = -3, 6$

13. $A(x) = 2|x|\sqrt{49 - x^2}$, $-7 \le x \le 7$

14. Quadrant IV

15. $\Theta \approx 0.0588$ radians $\approx 3.4^\circ$

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