

18. (a) Using Figure 2.3, fill in Table 2.3:

Table 2.3

x	-2	-1	0	1	2	3
$h(x)$						

- (b) Evaluate $h(3) - h(1)$ (c) Evaluate $h(2) - h(0)$
 (d) Evaluate $2h(0)$ (e) Evaluate $h(1) + 3$

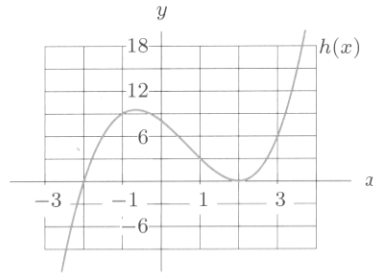


Figure 2.3

19. Let $f(x) = \sqrt{x^2 + 16} - 5$.

- (a) Find $f(0)$
 (b) For what values of x is $f(x)$ zero?
 (c) Find $f(3)$
 (d) What is the vertical intercept of the graph of $f(x)$?
 (e) Where does the graph cross the x -axis?

20. Use the letters a, b, c, d, e, h in Figure 2.4 to answer the following questions.

- (a) What are the coordinates of the points P and Q ?
 (b) Evaluate $f(b)$.
 (c) Solve $f(x) = e$ for x .
 (d) Suppose $c = f(z)$ and $z = f(x)$. What is x ?
 (e) Suppose $f(b) = -f(d)$. What additional information does this give you?

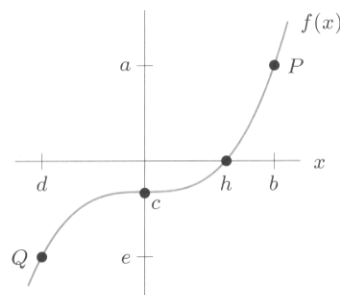


Figure 2.4

21. (a) Complete Table 2.4 using

$$f(x) = 2x(x-3) - x(x-5) \quad \text{and} \quad g(x) = x^2 - x.$$

What do you notice? Graph these two functions. Are the two functions the same? Explain.

- (b) Complete Table 2.5 using

$$h(x) = x^5 - 5x^3 + 6x + 1 \quad \text{and} \quad j(x) = 2x + 1.$$

What do you notice? Graph these two functions. Are the two functions the same? Explain.

Table 2.4

x	-2	-1	0	1	2
$f(x)$					
$g(x)$					

Table 2.5

x	-2	-1	0	1	2
$h(x)$					
$j(x)$					

22. A ball is thrown up from the ground with initial velocity 64 ft/sec. Its height at time t is

$$h(t) = -16t^2 + 64t.$$

- (a) Evaluate $h(1)$ and $h(3)$. What does this tell us about the height of the ball?
 (b) Sketch this function. Using a graph, determine when the ball hits the ground and the maximum height of the ball.

23. Let $v(t) = t^2 - 2t$ be the velocity, in ft/sec, of an object at time t , in seconds.

- (a) What is the initial velocity, $v(0)$?
 (b) When does the object have a velocity of zero?
 (c) What is the meaning of the quantity $v(3)$? What are its units?

24. Let $s(t) = 11t^2 + t + 100$ be the position, in miles, of a car driving on a straight road at time t , in hours. The car's velocity at any time t is given by $v(t) = 22t + 1$.

- (a) Use function notation to express the car's position after 2 hours. Where is the car then?
 (b) Use function notation to express the question, "When is the car going 65 mph?"
 (c) Where is the car when it is going 67 mph?