Number:_____ Name:_____ HW DUE:_____

Evaluating Functions Independent Work/Homework

Directions: Complete ODDS in class for classwork credit. Complete EVENS at home for homework credit. SHOW ALL WORK on numbered looseleaf to earn credit on both assignments. Circle, box, or highlight your answer for each problem.

In Exercises 1–2, evaluate the function for $x = -7$.

1. $f(x) = x/2 - 1$

2. $f(x) = x^2 - 3$

For Exercises 3–6, calculate exactly the values of y when $y = f(4)$ and of x when $f(x) = 6$.

3. $f(x) = \dfrac{6}{2 - x^3}$

4. $f(x) = \sqrt{20 + 2x^2}$

5. $f(x) = 4x^{3/2}$

6. $f(x) = x^{-3/4} - 2$

7. If $f(x) = 2x+1$, (a) Find $f(0)$ (b) Solve $f(x) = 0$.

8. If $f(t) = t^2-4$, (a) Find $f(0)$ (b) Solve $f(t) = 0$.

9. If $g(x) = x^2-5x+6$, (a) Find $g(0)$ (b) Solve $g(x) =$

10. If $g(t) = \dfrac{1}{t+2} - 1$, (a) Find $g(0)$ (b) Solve $g(t) = 0$

11. If $f(x) = \dfrac{x}{1 - x^2}$, find $f(-2)$.

12. If $h(x) = ax^2 + bx + c$, find $h(0)$.

13. If $P(t) = 170 - 4t$, find $P(4) - P(2)$.

14. If $g(x) = -\frac{1}{2}x^{1/3}$, find $g(-27)$.

15. Let $h(x) = 1/x$. Find **(a)** $h(x+3)$ **(b)** $h(x) + h(3)$

16. Let $f(x) = \dfrac{2x + 1}{x + 1}$. For what value of x is $f(x) = 0.3$?

21. If $V = \frac{1}{3}\pi r^2 h$ gives the volume of a cylinder, what is the value of V when $r = 3$ inches and $h = 2$ inches? Give units.

22. Let $q(x) = 3 - x^2$. Evaluate and simplify:

(a) $q(5)$ **(b)** $q(a)$
(c) $q(a-5)$ **(d)** $q(a) - 5$
(e) $q(a) - q(5)$

23. Let $p(x) = x^2 + x + 1$. Find $p(-1)$ and $-p(1)$. Are they equal? *ask for O'Mara's help on #23

24. Let $f(x) = 3 + 2x^2$. Find $f\left(\frac{1}{3}\right)$ and $\frac{f(1)}{f(3)}$. Are they equal?

25. Chicago's average monthly rainfall, $R = f(t)$ inches, is given as a function of month, t, in Table 2.3. (January is $t = 1$.) Solve and interpret:

(a) $f(t) = 3.7$ **(b)** $f(t) = f(2)$

Table 2.3

t	1	2	3	4	5	6	7	8
R	1.8	1.8	2.7	3.1	3.5	3.7	3.5	3.4

29. Use the graph of $f(x)$ in Figure 2.3 to estimate:

(a) $f(0)$ **(b)** $f(1)$ **(c)** $f(b)$ **(d)** $f(c)$ **(e)** $f(d)$

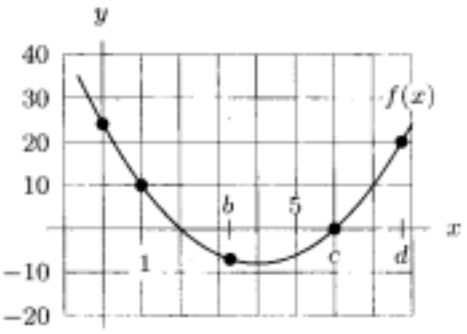

Figure 2.3

33. 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.

34. 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?

35. 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?