Chapter Test

Take this test as you would take a test in class. After you are done, check your work against the answers in the back of the book.

The *Interactive* CD-ROM provides answers to the Chapter Tests and Cumulative Tests. It also offers Chapter Pre-Tests (which test key skills and concepts covered in previous chapters) and Chapter Post-Tests, both of which have randomly generated exercises with diagnostic capabilities.

In Exercises 1–4, use a graphing utility to graph the equation. Check for symmetry and identify any x- or y-intercepts.

1. $y = 4 - \frac{3}{4}x$
2. $y = 4 - \frac{3}{4}|x|$
3. $y = 4 - (x - 2)^2$
4. $y = \sqrt{3 - x}$

5. Find the slope of the line through the points $(-3, 6)$ and $(3, 2)$.
6. A line passes through the point $(3, -1)$ with slope $m = \frac{3}{2}$. List three additional points on the line.
7. Find an equation of the line that passes through the point $(0, 4)$ and is perpendicular to the line $5x + 2y = 3$.
8. The graph of $y^2(4 - x) = x^3$ is shown in the figure. Does the graph represent y as a function of x? Explain.

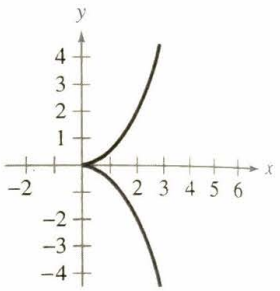

FIGURE FOR 8

In Exercises 9–12, use the function $f(x) = 10 - \sqrt{3 - x}$.

9. Evaluate: $f(-6)$
10. Simplify: $f(t - 3)$
11. Find the domain of f.
12. Simplify: $[f(x) - f(2)]/(x - 2)$

In Exercises 13 and 14, use a graphing utility to graph the function. Decide whether the function is even, odd, or neither. Determine the intervals over which the function is increasing, decreasing, or constant.

13. $h(x) = \frac{1}{4}x^4 - 2x^2$
14. $g(t) = |t + 2| - |t - 2|$

In Exercises 15–18, use the functions $f(x) = x^2$ and $g(x) = \sqrt{2 - x}$ to find the specified function and its domain.

15. $(f - g)(x)$
16. $\left(\frac{f}{g}\right)(x)$
17. $(f \circ g)(x)$
18. $g^{-1}(x)$

19. The graph of a function g is shown in the figure. Sketch the graphs of (a) $\frac{1}{2}g(x - 2)$ and (b) $g\left(\frac{1}{2}x\right) - 1$.

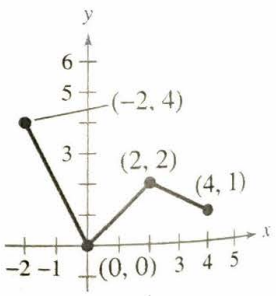

FIGURE FOR 19

20. The stopping distance d of an automobile is directly proportional to the square of its speed s. A car required 35 meters to stop when its speed was 70 kilometers per hour. Estimate the stopping distance if the brakes are applied when the car is traveling at 100 kilometers per hour.