Chapter Test

Take this test as you would take a test in class. After you are done, check your work against the answers given 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 and 2, evaluate the quantity without the aid of a calculator.

1. $\dfrac{5}{18} \div \dfrac{15}{8}$

2. $\sqrt{5} \cdot \sqrt{125}$

In Exercises 3 and 4, simplify the expression.

3. $3z^2(2z^3)^2$

4. $9z\sqrt{8z} - 3\sqrt{2z^3}$

In Exercises 5–8, perform the operations and simplify.

5. $(x^2 + 3) - [3x + (8 - x^2)]$

6. $(3x - 2)^2$

7. $\dfrac{8x}{x - 3} + \dfrac{24}{3 - x}$

8. $\left(\dfrac{2}{x} - \dfrac{2}{x + 1}\right) \div \left(\dfrac{4}{x^2 - 1}\right)$

9. Completely factor the expression $x^3 + 2x^2 - 4x - 8$.

10. Write an expression for the area of the shaded region shown in the figure. Then simplify the result.

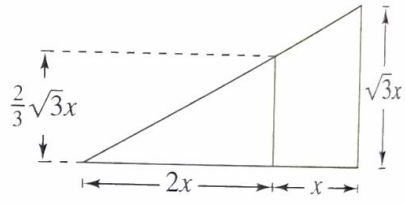

FIGURE FOR 10

In Exercises 11–16, solve the equation.

11. $\frac{2}{3}(x - 1) + \frac{1}{4}x = 10$

12. $\dfrac{x - 2}{x + 2} + \dfrac{4}{x + 2} + 4 = 0$

13. $3x^2 + 6x + 2 = 0$

14. $x^4 + x^2 - 6 = 0$

15. $2\sqrt{x} - \sqrt{2x + 1} = 1$

16. $|3x - 1| = 7$

In Exercises 17 and 18, solve the inequality and sketch the solution.

17. $-3 \le 2(x + 4) < 14$

18. $\dfrac{2}{x} > \dfrac{5}{x + 6}$

19. On the first part of a 350-kilometer trip, a salesperson traveled 2 hours and 15 minutes at an average speed of 100 kilometers per hour. Find the average speed required for the remainder of the trip if the salesperson needs to arrive at the destination in another hour and 20 minutes.

20. Plot the points $(-2, 5)$ and $(6, 0)$. Find the coordinates of the midpoint of the line segment joining the points and the distance between the points.