Name_____ Date _____

3.5 Practice B

In Exercises 1–6, solve the equation.

1. $4x^4 + 12x^3 + 9x^2 = 0$

2. $6h^5 = 12h^3$

3. $16q^4 - 8q^2 + 1 = 0$

4. $w^4 + 81 = 18w^2$

5. $p^3 - 25p = 50 - 2p^2$

6. $y^3 - 8y^2 = 9y - 72$

In Exercises 7–10, find the zeros of the function. Then sketch a graph of the function.

7. $f(x) = -5x^4 + 20x^3 + 60x^2$

8. $g(x) = -x^3 - x^2 + 30x$

9. $h(x) = x^3 + x^2 - 4x - 4$

10. $f(x) = x^3 - 4x^2 - 9x + 36$

11. According to the Rational Root Theorem, which is *not* a possible zero of the function $f(x) = 24x^4 - 16x^3 + 21x - 27$?

A. $-\frac{3}{8}$ **B.** -2 **C.** $-\frac{1}{3}$ **D.** $-\frac{9}{4}$

12. Describe and correct the error in listing the possible rational zeros of the function.

✗ $f(x) = 2x^3 + 5x^2 - 2x - 6$

Possible zeros: $\pm 1, \pm 2, \pm 3, \pm 6$

In Exercises 13 and 14, find all the real solutions of the equation.

13. $2x^3 - 3x^2 + 18x - 27 = 0$

14. $x^3 - 5x^2 - 2x + 24 = 0$

15. Write a third or fourth degree polynomial function that has zeros at $\pm\frac{7}{5}$. Justify your answer.

16. The sidewalk hazard marker is shaped like a pyramid, with a height 2 centimeters greater than the length of each side of its square base. The volume of the marker is 297 cubic centimeters. What are the dimensions of the sidewalk hazard marker?