

Chapter 7 Review

Write each polynomial in standard form. Then classify it by degree and by number of terms.

1. $a^2 + 4a - 5a^2 - a$

2. $3x - \frac{1}{3} - 5x$

3. $3n^2 + n^3 - n - 3 - 3n^3$

4. $15 - y^2 - 10y - 8 + 8y$

5. $6c^2 - 4c + 7 - 8c^2$

6. $3x^2 - 5x - x^2 + x + 4x$

Determine the end behavior of the graph of each polynomial function.

7. $y = x^2 - 2x + 3$

8. $y = x^3 - 2x$

9. $y = 7x^5 + 3x^3 - 2x$

10. $y = \frac{1}{2}x^4 + 5x^2 - \frac{1}{2}$

11. $y = 15x^9$

12. $y = -x^{12} + 6x^6 - 36$

Write a polynomial function in standard form with the given zeros.

13. $x = 3, 2, -1$

14. $x = 1, 1, 2$

15. $x = -2, -1, 1$

Find the zeros of each function. State the multiplicity of multiple zeros.

16. $y = (x + 1)(x - 8)(x - 9)$

17. $y = x(x + 1)(x + 5)$

18. $y = x^2(x + 1)$

19. $y = (x - 3)(x - 4)^2$

Find the real or imaginary solutions of each equation by factoring.

20. $x^3 + 27 = 0$

21. $8x^3 = 125$

22. $9 = 4x^2 - 16$

Solve each equation.

23. $t^3 - 3t^2 - 10t = 0$

24. $4m^3 + m^2 - m + 5 = 0$

25. $t^3 - 6t^2 + 12t - 8 = 0$

26. $2c^3 - 7c^2 - 4c = 0$

Divide.

27. $(x^3 - 3x^2 + 2) \div (x - 1)$

28. $(x^3 - x^2 - 6x) \div (x - 3)$

29. $(2x^3 + 10x^2 + 8x) \div (x + 4)$

30. $(x^4 + x^2 - 6) \div (x^2 + 3)$