

**Practice B**

For use with pages 329–336

**Decide whether the function is a polynomial function. If it is, write the function in standard form and state the degree and leading coefficient.**

1.  $f(x) = 3x^2 - 2x^3 + 4x$

2.  $f(x) = 3x^{-3} + 2x + 1$

3.  $f(x) = 4\sqrt{x} - 2x + 7x^3 - 1$

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

5.  $f(x) = \frac{1}{3}x + \frac{2}{3} - \frac{1}{6}x^2$

6.  $f(x) = -x + \sqrt{5}x^4 + 2x^2 - 7$

**Use direct substitution to evaluate the polynomial function for the given value of  $x$ .**

7.  $f(x) = 3x + 2, x = -3$

8.  $f(x) = 2x^3 - 3x^2 + 5x - 1, x = 1$

9.  $f(x) = 4x^2 - 5x + 2, x = 3$

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

11.  $f(x) = 3x^7 + 2x^6 - 5x + 8, x = 0$

12.  $f(x) = 6x^3 - 2x^2 + 5x + 2, x = 2$

13.  $f(x) = -2x^5 + 3x^3 - 2x + 5, x = -1$

14.  $f(x) = -x^4 - 2x^3 + 4x^2 + 6x - 3, x = 3$

**Use synthetic substitution to evaluate the polynomial function for the given value of  $x$ .**

15.  $f(x) = 2x^3 - 3x^2 + 4x + 2, x = 4$

16.  $f(x) = -2x^4 + 3x^3 - 5x^2 + 2x - 6, x = -2$

17.  $f(x) = -5x^4 + 3x^2 + 2x - 5, x = 1$

18.  $f(x) = x^6 + 3x + 4, x = 2$

19.  $f(x) = 2x^2 - 4x + 7, x = -3$

20.  $f(x) = x^4 + 3x^3 - 2x^2 + 8x, x = -4$

21.  $f(x) = -4x^3 + 2x^2 + 6x, x = 3$

22.  $f(x) = -3x^3 + 5x^2 + 6x - 8, x = -1$

**Graph the polynomial function.**

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

24.  $f(x) = 2x^4 + 1$

25.  $f(x) = 2x^3 + 1$

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

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

28.  $f(x) = x^4 + 2x^3 - 5x + 1$

29.  $f(x) = 1 - x^2 - x^3$

30.  $f(x) = 2 + x^2 - x^4$

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

**32. Value of the Dollar** From 1988 to 1998 the value of a dollar in 1998 dollars can be modeled by  $V = 0.002t^2 - 0.06t + 1.37$  where  $V$  is the value of the dollar and  $t$  is the number of years since 1988. What was the value of a dollar in 1996 in terms of 1998 dollars?

**33. Preakness Stakes** From 1990 to 1998, the money received by the winning horse can be modeled by  $W = 6266.2t^3 - 79,306.8t^2 + 295,834.9t + 157,544.5$  where  $W$  is the winnings and  $t$  is the number of years since 1990. How much did Silver Charm win in 1997?