

LESSON

6-3

Practice B**Dividing Polynomials**

Divide by using long division.

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

2. $(2x^3 - 10x^2 + x - 5) \div (x - 5)$

3. $(-3x^2 + 20x - 12) \div (x - 6)$

4. $(3x^3 + 9x^2 - 14) \div (x + 3)$

Divide by using synthetic division.

5. $(3x^2 - 8x + 4) \div (x - 2)$

6. $(5x^2 - 4x + 12) \div (x + 3)$

7. $(9x^2 - 7x + 3) \div (x - 1)$

8. $(-6x^2 + 5x - 10) \div (x + 7)$

Use synthetic substitution to evaluate the polynomial for the given value.

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

10. $P(x) = -3x^2 + 10x - 4$ for $x = -2$

Solve.

11. The total number of dollars donated each year to a small charitable organization has followed the trend $d(t) = 2t^3 + 10t^2 + 2000t + 10,000$, where d is dollars and t is the number of years since 1990. The total number of donors each year has followed the trend $p(t) = t^2 + 1000$. Write an expression describing the average number of dollars per donor.
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0.
 6. 800; 972; 1024; 980; 864
 7. a. 4
 b. Possible answer: The volume increases up to $x = 4$ and then decreases after that.
 c. 4 by 16 by 16 inches

Reading Strategies

1. Yes; $3x^2$
 2. No; $2x^2 + x - 3$
 3. a. $6x^4 + 3x^3 - 9x^2$
 b. 3
 c. 4
 4. $x^n x^m = x^{n+m}$

LESSON 6-3

Practice A

1. $x + 5 + \frac{21}{x-3}$
 2. $3x - 3 - \frac{6}{x+2}$
 3. $2x^2 + 2x + \frac{x}{2x+1}$
 4. $2x^2 - 4x + 5$
 5. a. 1
 b. 9
 c. 46
 d. 46
 e. $x + 9 + \frac{46}{x-5}$
 6. $x - 10 + \frac{26}{x+2}$
 7. $x + 7 + \frac{19}{x-3}$
 8. $P(4) = 5$
 9. $P(-3) = -4$

Practice B

1. $x + 2$
 2. $2x^2 + 1$
 3. $-3x + 2$
 4. $3x^2 - \frac{14}{x+3}$
 5. $3x - 2$
 6. $5x - 19 + \frac{69}{x+3}$
 7. $9x + 2 + \frac{5}{x-1}$
 8. $-6x + 47 - \frac{339}{x+7}$
 9. $P(3) = 11$
 10. $P(-2) = -36$

11. $2t + 10$

Practice C

1. $x^2 + 5x - 12$
 2. $x^2 + 15x + 45 + \frac{131}{x-3}$
 3. $4x^3 + 9x^2 + 5 + \frac{9}{3x-1}$
 4. $-x^2 + 6x - 7$
 5. $9x + 51 + \frac{317}{x-6}$
 6. $3x^3 - 6x^2 + 10x - 20 + \frac{41}{x+2}$
 7. $6x^4 + 6x^3 + 6x^2 + 3x + 4 + \frac{2}{x-1}$
 8. $-x^3 - 10x^2 - 24x - 72 - \frac{217}{x-3}$
 9. $P(5) = 438$
 10. $P(-2) = -79$
 11. $2t^2 + 100$

Reteach

1. $4x - 1 + \frac{8}{x+2}$
 2. $2x + 1 + \frac{5}{x+4}$
 3. $3x + 10$
 4. $2x + 1 - \frac{8}{3x+2}$
 5. $4x - 1 + \frac{12}{x+2}$
 6. $a = 5$
 $2x + 4 + \frac{8}{x-5}$

Challenge

1. $2x - 2 + \frac{1}{x+3}$
 2. $x^2 + 7x + 16 + \frac{53}{x-3}$
 3. $5x^2 - 10x + 26 - \frac{44}{x+2}$
 4. $\frac{1}{2}x^3 + \frac{1}{4}x^2 + \frac{1}{8}x + \frac{1}{16}$