

Name Key Date 5 Class \_\_\_\_\_

LESSON  
6-3

**Practice B**  
**Dividing Polynomials**

Divide by using long division.

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

$$\underline{x + 2}$$

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

$$\underline{-3x + 2}$$

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

$$\underline{2x^2 + 1}$$

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

$$\underline{3x^2 - \frac{14}{x+3}}$$

Divide by using synthetic division.

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

$$\underline{3x - 2}$$

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

$$\underline{9x + 2 + \frac{5}{x-1}}$$

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

$$\underline{5x - 19 + \frac{69}{x+3}}$$

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

$$\underline{-6x + 47 - \frac{339}{x+7}}$$

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

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

$$\underline{P(3) = 11}$$

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

$$\underline{P(-2) = -36}$$

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.

$$\underline{2t + 10}$$