NAME DATE SCORE

Dividing Polynomials (For use after Lesson 8-5)

Divide.

1. $\dfrac{x^2 + 5x - 14}{x - 2}$ _____

2. $\dfrac{6x^2 + 13x - 5}{3x - 1}$ _____

3. $\dfrac{x^4 + x^3 - 2x^2 + 2}{x + 1}$ _____

4. $\dfrac{8x^3 - x + 2}{3 - x}$ _____

5. $\dfrac{12x^3 - 7x^2 - 14x + 5}{3x^2 + 2x - 1}$ _____

6. $\dfrac{x^3 - 8}{x - 2}$ _____

Use synthetic division and the remainder theorem to find $P(c)$ for the given polynomial $P(x)$ and number c.

7. $P(x) = x^3 - 2x^2 + 9x - 2$; $c = 3$ _____

8. $P(x) = 2 - x + 3x^3 + x^4$; $c = -2$ _____

Use the factor theorem to determine whether the first polynomial is a factor of the second.

9. $x - 4$; $x^4 - 5x^3 + 5x^2 - 5x + 4$ _____

10. $x + 2$; $x^5 - 4x^2 + x - 4$ _____

Solve each equation given the indicated root.

11. $x^3 + 5x^2 - 29x - 105 = 0$; -3 _____

12. $x^3 - 7x^2 + 4x + 12 = 0$; 6 _____

Find a polynomial equation that has integral coefficients and the given numbers as roots.

13. $1, -2, -3$ _____

14. 0 (triple root), -2 (double root) _____

15. $2, 3i, -3i$ _____

16. 0, i (double root), $-i$ (double root) _____

17. $1, \dfrac{1}{2}, \dfrac{1}{4}$ _____