Name _____ Date _____

LESSON 9.1

Practice C

For use with pages 554–560

Tell whether the expression is a polynomial. If it is a polynomial, find its degree and classify it by the number of its terms. Otherwise, tell why it is not a polynomial.

1. -8

2. $x^2 - 5x + x^{-1}$

3. $-3b^2 - 5 + \frac{1}{2}b$

Find the sum or difference.

4. $(3m^3 + 2m + 1) + (4m^2 - 3m + 1)$

5. $(-4y^2 + y + 5) + (4 - 3y - y^2)$

6. $(-4c + c^3 + 8) + (c^2 - 5c - 3)$

7. $(-3z + 6) - (4z^2 - 7z - 8)$

8. $(14x^4 - 3x^2 + 2) - (3x^3 + 4x^2 + 5)$

9. $(5 - x^4 - 2x^3) - (-6x^2 + 5x + 5)$

10. Find the sum $f(x) + g(x)$ and the difference $f(x) - g(x)$ for the functions $f(x) = -5x^2 + 2x - 1$ and $g(x) = 6x^3 + 2x^2 - 5$.

Find the sum or difference.

11. $(10a^2b^2 - 7a^2b) + (-4a^3b^2 + 5a^2b^2 - 3a^2b + 5)$

12. $(6m^2n - 5mn^2 - 8n + 2m) - (6n^2m + 3m^2n)$

13. **Mineral Production** For 1997 through 2003, the amount P of peat produced (in thousand metric tons) and the amount L of perlite produced (in thousand metric tons) in the United States can be modeled by

$P = 3.09t^4 - 36.74t^3 + 121.38t^2 - 77.65t + 663.57$

and

$L = 1.84t^4 - 20.04t^3 + 56.27t^2 - 48.77t + 703.94$

where t is the number of years since 1997.

a. Write an equation that gives the total number T of thousand metric tons of peat and perlite produced as a function of the number of years since 1997.

b. Was more peat and perlite produced in 1997 or in 2003? *Explain* your answer.

14. **Home Sales** In 1997, the median sale price for a one-family home in the Northeast was about \$187,443 and the median sale price for a one-family home in the Midwest was about \$151,629. From 1997 through 2003, the median sale price for a one-family home in the Northeast increased by about \$13,857 per year and the median sale price for a one-family home in the Midwest increased by about \$5457 per year.

a. Write two equations that model the median sale prices of a one-family home in the Northeast and Midwest as functions of the number of years since 1997.

b. How much more did a home in the Northeast cost than a home in the Midwest in 1997 and 2003? What was the change in the sale price of each area from 1997 to 2003?