

**6-1 Practice****Operations with Polynomials**

Simplify. Assume that no variable equals 0.

1.  $n^5 \cdot n^2$

2.  $y^7 \cdot y^3 \cdot y^2$

3.  $t^9 \cdot t^{-8}$

4.  $x^{-4} \cdot x^{-4} \cdot x^4$

5.  $(2f^4)^6$

6.  $(-2b^{-2}c^3)^3$

7.  $(4d^2t^5v^{-4})(-5dt^{-3}v^{-1})$

8.  $8u(2z)^3$

9.  $\frac{12m^8y^6}{-9my^4}$

10.  $\frac{-6s^5x^3}{18sx^7}$

11.  $\frac{-27x^3(-x^7)}{16x^4}$

12.  $\left(\frac{2}{3r^2s^3z^6}\right)^2$

13.  $-(4w^{-3}z^{-5})(8w)^2$

14.  $(m^4n^6)^4(m^3n^2p^5)^6$

15.  $\left(\frac{3}{2}d-f^4\right)^4\left(-\frac{4}{3}d^5f\right)^3$

16.  $\left(\frac{2x^3y^2}{-x^2y^5}\right)^{-2}$

17.  $\frac{(3x^{-2}y^3)(5xy^{-8})}{(x^{-3})^4y^{-2}}$

18.  $\frac{-20(m^2v)(-v)^3}{5(-v)^2(-m^4)}$

19.  $(3n^2 + 1) + (8n^2 - 8)$

20.  $(6w - 11w^2) - (4 + 7w^2)$

21.  $(w + 2t)(w^2 - 2wt + 4t^2)$

22.  $(x + y)(x^2 - 3xy + 2y^2)$

**23. BANKING** Terry invests \$1500 in two mutual funds. The first year, one fund grows 3.8% and the other grows 6%. Write a polynomial to represent the amount Terry's \$1500 grows to in that year if  $x$  represents the amount he invested in the fund with the lesser growth rate.

**24. GEOMETRY** The area of the base of a rectangular box measures  $2x^2 + 4x - 3$  square units. The height of the box measures  $x$  units. Find a polynomial expression for the volume of the box.