9.1 EXERCISES

HOMEWORK KEY

= **WORKED-OUT SOLUTIONS** on p. WS1 for Exs. 21 and 39

= **TAKS PRACTICE AND REASONING** Exs. 9, 10, 39, 41, and 43

SKILL PRACTICE

1. **VOCABULARY** Copy and complete: A number, a variable, or the product of one or more variables is called a(n) _?_.

2. **WRITING** Is 6 a polynomial? *Explain* why or why not.

EXAMPLE 1 on p. 554 for Exs. 3–9

REWRITING POLYNOMIALS **Write the polynomial so that the exponents decrease from left to right. Identify the degree and leading coefficient of the polynomial.**

3. $9m^5$
4. $2 - 6y$
5. $2x^2y^2 - 8xy$
6. $5n^3 + 2n - 7$
7. $5z + 2z^3 - z^2 + 3z^4$
8. $-2h^2 + 2h^4 - h^6$

9. **TAKS REASONING** What is the degree of $-4x^3 + 6x^4 - 1$?

   (A) -4 (B) 3 (C) 4 (D) 6

EXAMPLE 2 on p. 555 for Exs. 10–16

10. **TAKS REASONING** Which expression is *not* a monomial?

    (A) $-5x^2$ (B) $0.2y^4$ (C) $3mn$ (D) $3s^{-2}$

IDENTIFYING AND CLASSIFYING POLYNOMIALS **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.**

11. -4^x
12. $w^{-3} + 1$
13. $3x - 5$
14. $\frac{4}{5}f^2 - \frac{1}{2}f + \frac{2}{3}$
15. $6 - n^2 + 5n^3$
16. $10y^4 - 3y^2 + 11$

EXAMPLES 3 and 4 on pp. 555–556 for Exs. 17–28

ADDING AND SUBTRACTING POLYNOMIALS **Find the sum or difference.**

17. $(5a^2 - 3) + (8a^2 - 1)$
18. $(h^2 + 4h - 4) + (5h^2 - 8h + 2)$
19. $(4m^2 - m + 2) + (-3m^2 + 10m + 7)$
20. $(7k^2 + 2k - 6) + (3k^2 - 11k - 8)$
21. $(6c^2 + 3c + 9) - (3c - 5)$
22. $(3x^2 - 8) - (4x^3 + x^2 - 15x + 1)$
23. $(-n^2 + 2n) - (2n^3 - n^2 + n + 12)$
24. $(9b^3 - 13b^2 + b) - (-13b^2 - 5b + 14)$
25. $(4d - 6d^3 + 3d^2) - (9d^3 + 7d - 2)$
26. $(9p^2 - 6p^3 + 3 - 11p) + (7p^3 - 3p^2 + 4)$

ERROR ANALYSIS ***Describe*** **and correct the error in finding the sum or difference of the polynomials.**

27.
$$\begin{array}{r} x^3 - 4x^2 + 3 \\ +\ -3x^3 + 8x - 2 \\ \hline -2x^3 + 4x^2 + 1 \end{array}$$

28.
$$(6x^2 - 5x) - (2x^2 + 3x - 2)$$
$$= (6x^2 - 2x^2) + (-5x + 3x) - 2$$
$$= 4x^2 - 2x - 2$$

29. **POLYNOMIAL FUNCTIONS** Find the sum $f(x) + g(x)$ and the difference $f(x) - g(x)$ for the functions $f(x) = 3x^2 + x - 7$ and $g(x) = -x^2 + 5x - 2$.