5.3 EXERCISES

SKILL PRACTICE

1. **VOCABULARY** When you add or subtract polynomials, you add or subtract the coefficients of __?__ .

2. **WRITING** *Explain* how a polynomial subtraction problem is equivalent to a polynomial addition problem.

EXAMPLES 1 and 2
on p. 346
for Exs. 3–15

ADDING AND SUBTRACTING POLYNOMIALS Find the sum or difference.

3. $(3x^2 - 5) + (7x^2 - 3)$

4. $(x^2 - 3x + 5) - (-4x^2 + 8x + 9)$

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

6. $(z^2 + 5z - 7) + (5z^2 - 11z - 6)$

7. $(3s^3 + s) + (4s^3 - 2s^2 + 7s + 10)$

8. $(2a^2 - 8) - (a^3 + 4a^2 - 12a + 4)$

9. $(5c^2 + 7c + 1) + (2c^3 - 6c + 8)$

10. $(4t^3 - 11t^2 + 4t) - (-7t^2 - 5t + 8)$

11. $(5b - 6b^3 + 2b^4) - (9b^3 + 4b^4 - 7)$

12. $(3y^2 - 6y^4 + 5 - 6y) + (5y^4 - 6y^3 + 4y)$

13. $(x^4 - x^3 + x^2 - x + 1) + (x + x^4 - 1 - x^2)$

14. $(8v^4 - 2v^2 + v - 4) - (3v^3 - 12v^2 + 8v)$

15. **TAKS REASONING** What is the result when $2x^4 - 8x^2 - x + 10$ is subtracted from $8x^4 - 4x^3 - x + 2$?

(A) $-6x^4 + 4x^3 - 8x^2 + 8$

(B) $6x^4 - 4x^3 + 8x^2 - 8$

(C) $10x^4 - 8x^3 - 4x^2 + 12$

(D) $6x^4 + 4x^3 - 2x - 8$

EXAMPLE 3
on p. 347
for Exs. 16–25

MULTIPLYING POLYNOMIALS Find the product of the polynomials.

16. $x(2x^2 - 5x + 7)$

17. $5x^2(6x + 2)$

18. $(y - 7)(y + 6)$

19. $(3z + 1)(z - 3)$

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

21. $(2a - 3)(a^2 - 10a - 2)$

22. $(5c^2 - 4)(2c^2 + c - 3)$

23. $(-x^2 + 4x + 1)(x^2 - 8x + 3)$

24. $(-d^2 + 4d + 3)(3d^2 - 7d + 6)$

25. $(3y^2 + 6y - 1)(4y^2 - 11y - 5)$

ERROR ANALYSIS *Describe* and correct the error in simplifying the expression.

26.
$$(x^2 - 3x + 4) - (x^3 + 7x - 2)$$
$$= x^2 - 3x + 4 - x^3 + 7x - 2$$
$$= -x^3 + x^2 + 4x + 2$$

27.
$$(2x - 7)^3 = (2x)^3 - 7^3$$
$$= 8x^3 - 343$$

EXAMPLE 4
on p. 347
for Exs. 28–37

MULTIPLYING THREE BINOMIALS Find the product of the binomials.

28. $(x + 4)(x - 6)(x - 5)$

29. $(x + 1)(x - 7)(x + 3)$

30. $(z - 4)(-z + 2)(z + 8)$

31. $(a - 6)(2a + 5)(a + 1)$

32. $(3p + 1)(p + 3)(p + 1)$

33. $(b - 2)(2b - 1)(-b + 1)$

34. $(2s + 1)(3s - 2)(4s - 3)$

35. $(w - 6)(4w - 1)(-3w + 5)$

36. $(4x - 1)(-2x - 7)(-5x - 4)$

37. $(3q - 8)(-9q + 2)(q - 2)$