

4.2 Practice B

In Exercises 1 and 2, find the sum.

$$1. (\cancel{8x^7} - \cancel{6x^5} + \cancel{4x^3} - \cancel{6x}) + (\cancel{15x^6} + \cancel{4x^5} - \cancel{3x^3} + 2)$$

$$8x^7 + 15x^6 - 2x^5 + x^3 - 6x + 2$$

$$2. (\cancel{8x^4} - \cancel{2x^3} + \cancel{9x^2} + \cancel{7x} + 14) + (\cancel{6x^4} - \cancel{8x^3} - \cancel{9x^2} - \cancel{1x} - 9)$$

$$14x^4 - 7x^3 - 4x + 5$$

In Exercises 3 and 4, find the difference.

$$3. (\cancel{9x^5} + \cancel{8x^4} - \cancel{9x^2} + \cancel{10x}) - (\cancel{12x^5} + \cancel{2x^4} - \cancel{x^2} - 9)$$

$$-3x^5 + 3x^4 - 8x^2 + 10x + 9$$

$$4. (\cancel{12x^4} - \cancel{6x^2} + \cancel{2x} + 14) - (\cancel{3x^4} - \cancel{5x^3} + \cancel{9x} + 3)$$

$$9x^4 + 5x^3 - 6x^2 - 7x + 11$$

In Exercises 5-6, find the product.

$$5. (x^2 - 7x - 2)(x^2 - 3x - 6)$$

$$6. (2x^2 + 3x - 1)(-5x^2 - 2x + 4)$$

$$5. \cancel{x^4} - \cancel{3x^3} - \cancel{6x^2} - \cancel{7x} + \cancel{21x} + \cancel{42} - \cancel{2x^2} + \cancel{6x} + 12$$

$$x^4 - 10x^3 + 13x^2 + 48x + 12$$

$$-10x^4 - \cancel{4x^3} + \cancel{8x^2} - \cancel{18x^3} - \cancel{6x^2} + 12 + \cancel{5x} + \cancel{2x} - 4$$

$$6. -10x^4 - 19x^3 + 7x^2 + 14x - 4$$

9. Describe and correct the error in performing the operation.

$$\times \quad 4x^2(3x^4 - 2x^3 + 7) = 12x^8 - 8x^6 + 28x^2$$

$$12x^6 - 8x^5 + 28x^2$$

multiplied
the exponents when
you should add

In Exercises 7–8, find the product of the binomials.

7. $(x - 3)(2x + 2)(3x - 1)$

$$2x^2 + 2x - 6x - 6$$

$$(2x^2 - 4x - 6)(3x - 1)$$

$$6x^3 - 12x^2 - 18x - 2x^2 + 4x + 6$$

In Exercises 9–11, find the product.

9. $(3x + 5)(3x - 5)$

$$9x^2 - 25$$

10. $(6t + 7)^2$

$$36t^2 + 84t + 49$$

11. $(pq + 2)^2$

$$p^2q^2 + 4pq + 4$$

8. $(2x + 3)(x - 5)(4x + 1)$

$$2x^3 - 10x + 3x - 15$$

$$(2x^2 - 7x - 15)(4x + 1)$$

$$8x^3 - 28x^2 - 60x + 2x^2 - 7x - 15$$

$$8x^3 - 26x^2 - 67x - 15$$

12. A rectangular pool has a level floor. The length of the pool is $(3x - 1)$ feet, the width of the pool is $(x + 6)$ feet, and the depth of the pool is $(x + 6)$ feet.

- a. Write an expression for the volume of the pool as a product of binomials.

$$(3x - 1)(x + 6)^2$$

- b. Write an expression for the volume of the pool as a polynomial in standard form.

$$3x^3 + 35x^2 + 96x - 36$$