Check Your Understanding

Example 1 Determine whether each expression is a polynomial. If it is a polynomial, find the degree and determine whether it is a *monomial, binomial,* or *trinomial.*

1. $7ab + 6b^2 - 2a^3$

2. $2y - 5 + 3y^2$

3. $3x^2$

4. $\dfrac{4m}{3p}$

5. $5m^2p^3 + 6$

6. $5q^{-4} + 6q$

Example 2 Write each polynomial in standard form. Identify the leading coefficient.

7. $2x^5 - 12 + 3x$

8. $-4d^4 + 1 - d^2$

9. $4z - 2z^2 - 5z^4$

10. $2a + 4a^3 - 5a^2 - 1$

Examples 3–4 Find each sum or difference.

11. $(6x^3 - 4) + (-2x^3 + 9)$

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

(13) $(4 + 2a^2 - 2a) - (3a^2 - 8a + 7)$

14. $(8y - 4y^2) + (3y - 9y^2)$

15. $(-4z^3 - 2z + 8) - (4z^3 + 3z^2 - 5)$

16. $(-3d^2 - 8 + 2d) + (4d - 12 + d^2)$

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

18. $(3n^3 - 5n + n^2) - (-8n^2 + 3n^3)$

Example 5

19. **CCSS SENSE-MAKING** The total number of students T who traveled for spring break consists of two groups: students who flew to their destinations F and students who drove to their destination D. The number (in thousands) of students who flew and the total number of students who flew or drove can be modeled by the following equations, where n is the number of years since 1995.

$$T = 14n + 21 \qquad F = 8n + 7$$

a. Write an equation that models the number of students who drove to their destination for this time period.

b. Predict the number of students who will drive to their destination in 2012.

c. How many students will drive or fly to their destination in 2015?

Practice and Problem Solving