9 CHAPTER TEST

Find the sum or difference.

1. $(a^2 - 4a + 6) + (-3a^2 + 13a + 1)$

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

3. $(15n^2 + 7n - 1) - (4n^2 - 3n - 8)$

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

Find the product.

5. $(2z + 9)(z - 7)$

6. $(5m - 8)(5m - 7)$

7. $(b + 2)(-b^2 + 4b - 3)$

8. $(5 + 7y)(1 - 9y)$

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

10. $(5p - 6)(5p + 6)$

11. $(12 - 3g)^2$

12. $(2s + 9t)^2$

13. $(11a - 4b)(11a + 4b)$

Factor the polynomial.

14. $x^2 + 8x + 7$

15. $2n^2 - 11n + 15$

16. $-12r^2 + 5r + 3$

17. $t^2 - 10t + 25$

18. $-3n^2 + 75$

19. $3x^2 + 29x - 44$

20. $x^2 - 49$

21. $2a^4 + 21a^3 + 49a^2$

22. $y^3 + 2y^2 - 81y - 162$

Solve the equation.

23. $25a = 10a^2$

24. $21z^2 + 85z - 26 = 0$

25. $x^2 - 22x = -121$

26. $a^2 - 11a + 24 = 0$

27. $t^2 + 7t = 60$

28. $4x^2 = 22x + 42$

29. $56b^2 + b = 1$

30. $n^3 - 121n = 0$

31. $a^3 + a^2 = 64a + 64$

32. VERTICAL MOTION A cricket jumps off the ground with an initial vertical velocity of 4 feet per second.

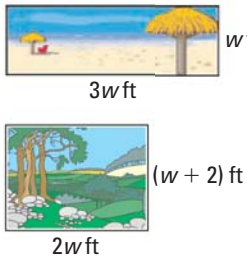
a. Write an equation that gives the height (in feet) of the cricket as a function of the time (in seconds) since it jumps.

b. After how many seconds does the cricket land on the ground?

33. POSTER AREA Two posters have the lengths and widths shown. The posters have the same area.

a. Write an equation that relates the areas of the two posters.

b. Find the length and width of each poster.



34. CONSTRUCTION A construction worker is working on the roof of a building. A drop of paint falls from a rafter that is 225 feet above the ground. After how many seconds does the paint hit the ground?

35. BOX DIMENSIONS A cardboard box that is a rectangular prism has the dimensions shown.

a. Write a polynomial that represents the volume of the box.

b. The volume of the box is 60 cubic inches. What are the length, width, and height of the box?