Name _____ Class _____ Date _____

Practice 9-3

Multiplying Binomials

Simplify each product. Write in standard form.

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

2. $(x^2 + x - 1)(x + 1)$

3. $(3w + 4)(2w - 1)$

4. $(x + 5)(x + 4)$

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

6. $(a - 11)(a + 5)$

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

8. $(3s - 4)(s - 5)$

9. $(4x + 3)(x - 7)$

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

11. $(5x - 3)(4x + 2)$

12. $(3y + 7)(4y + 5)$

13. $(3x + 7)(x + 5)$

14. $(5x - 2)(x + 3)$

15. $(3m^2 - 7m + 8)(m - 2)$

16. $(a - 6)(a + 8)$

17. $(x + 2)(2x^2 - 3x + 2)$

18. $(a^2 + a + 1)(a - 1)$

19. $(x - 2)(x^2 + 4x + 4)$

20. $(2r + 1)(3r - 1)$

21. $(k + 4)(3k - 4)$

22. $(2n - 3)(n^2 - 2n + 5)$

23. $(p - 4)(2p + 3)$

24. $(3x + 1)(4x^2 - 2x + 1)$

25. $(2x^2 - 5x + 2)(4x - 3)$

26. $(x + 7)(x + 5)$

27. $(6x - 11)(x + 2)$

28. $(2x + 1)(4x + 3)$

29. $(3x + 4)(3x - 4)$

30. $(6x - 5)(3x + 1)$

31. $(n - 7)(n + 4)$

32. $(3x - 1)(2x + 1)$

33. $(d + 9)(d - 11)$

34. $(2x^2 + 5x - 3)(2x + 1)$

35. $(b + 8)(2b - 5)$

36. $(2x - 5)(x + 4)$

37. $(3x + 5)(5x - 7)$

38. $(x - 5)(2x^2 - 7x - 2)$

39. $(2x^2 - 9x + 11)(2x + 1)$

40. $(2x^2 + 5x - 4)(2x + 7)$

41. $(x^2 + 6x + 11)(3x + 5)$

42. $(5x + 7)(7x + 3)$

43. $(4x - 7)(2x - 5)$

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

45. $(2x - 1)(x^2 - 7x + 1)$

46. The width of a rectangular painting is 3 in. more than twice the height. A frame that is 2.5 in. wide goes around the painting.

- **a.** Write an expression for the combined area of the painting and frame.
- **b.** Use the expression to find the combined area when the height of the painting is 12 in.
- **c.** Use the expression to find the combined area when the height of the painting is 15 in.

47. The Robertsons put a rectangular pool with a stone walkway around it in their backyard. The total length of the pool and walkway is 3 times the total width. The walkway is 2 ft wide all around.

- **a.** Write an expression for the area of the pool.
- **b.** Find the area of the pool when the total width is 10 ft.
- **c.** Find the area of the pool when the total width is 9 ft.

48. The Cutting Edge frame shop makes a mat by cutting out the inside of a rectangular board. Use the diagram to find the length and width of the original board if the area of the mat is 184 in^2.