

Practice

Form G

Multiplying Binomials

Simplify each product using the Distributive Property.

1. $(x + 3)(x + 8)$

$x^2 + 11x + 24$

2. $(y - 4)(y + 7)$

$y^2 + 3y - 28$

3. $(m + 9)(m - 3)$

$m^2 + 6m - 27$

4. $(c - 6)(c - 4)$

$c^2 - 10c + 24$

5. $(2r - 5)(r + 3)$

$2r^2 + r - 15$

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

$15x^2 - 4x - 3$

7. $(d + 2)(4d - 3)$

$4d^2 + 5d - 6$

8. $(5t - 1)(3t - 2)$

$15t^2 - 13t + 2$

9. $(a + 11)(11a + 1)$

$11a^2 + 122a + 11$

Simplify each product using a table.

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

$x^2 - 2x - 15$

11. $(a - 2)(a - 13)$

$a^2 - 15a + 26$

12. $(w - 4)(w + 8)$

$w^2 + 4w - 32$

13. $(5h - 3)(h + 7)$

$5h^2 + 32h - 21$

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

$2x^2 - 3x - 9$

15. $(2p + 1)(6p + 4)$

$12p^2 + 14p + 4$

Simplify each product using the FOIL method.

16. $(2x - 6)(x + 3)$

$2x^2 - 18$

17. $(n - 5)(3n - 4)$

$3n^2 - 19n + 20$

18. $(4p^2 + 2)(3p - 1)$

$12p^3 - 4p^2 + 6p - 2$

19. $(a + 7)(a - 3)$

$a^2 + 4a - 21$

20. $(x + 3)(3x - 2)$

$3x^2 + 7x - 6$

21. $(k - 9)(k + 5)$

$k^2 - 4k - 45$

22. $(b - 5)(b - 11)$

$b^2 - 16b + 55$

23. $(4m - 1)(m + 4)$

$4m^2 + 15m - 4$

24. $(7z + 3)(4z - 6)$

$28z^2 - 30z - 18$

25. $(2h + 6)(5h - 3)$

$10h^2 + 24h - 18$

26. $(3w + 12)(w + 3)$

$3w^2 + 21w + 36$

27. $(6c - 2)(9c - 8)$

$54c^2 - 66c + 16$

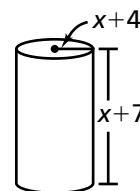
Practice (continued)

Form G

Multiplying Binomials

28. What is the surface area of the cylinder at the right? Write your answer in simplified form.

$4\pi x^2 + 38\pi x + 88\pi$



29. The radius of a cylindrical popcorn tin is $(3x + 1)$ in. The height of the tin is three times the radius. What is the surface area of the cylinder? Write your answer in simplified form.

$72\pi x^2 + 48\pi x + 8\pi$

30. The radius of a cylindrical tennis ball can is $(2x + 1)$ cm. The height of the tennis ball can is six times the radius. What is the surface area of the cylinder? Write your answer in simplified form.

$56\pi x^2 + 56\pi x + 14\pi$

Simplify each product.

31. $(x + 3)(x^2 - 2x + 4)$
 $x^3 + x^2 - 2x + 12$

32. $(k^2 - 5k + 2)(k - 5)$
 $k^3 - 10k^2 + 27k - 10$

33. $(3a^2 + a + 4)(2a - 6)$
 $6a^3 - 16a^2 + 2a - 24$

34. $(2x^2 + 2x - 6)(3x - 4)$
 $6x^3 - 2x^2 - 26x + 24$

35. $(4g + 5)(2g^2 - 7g + 3)$
 $8g^3 - 18g^2 - 23g + 15$

36. $(m^2 - 2m + 7)(3m + 6)$
 $3m^3 + 9m + 42$

37. $(2c + 8)(2c^2 - 4c - 1)$
 $4c^3 + 8c^2 - 34c - 8$

38. $(t + 8)(3t^2 + 4t + 5)$
 $3t^3 + 28t^2 + 37t + 40$

39. A medical center's rectangular parking lot currently has a length of 30 meters and a width of 20 meters. The center plans to expand both the length and the width of the parking lot by $2x$ meters. What polynomial in standard form represents the area of the expanded parking lot?

$4x^2 + 100x + 600$

40. **Error Analysis** Describe and correct the error made in finding the product.

In the table, the 3 should be -3 . Therefore, $3x$ should be $-3x$ and 21 should be -21 . The answer is $2x^2 + 11x - 21$.

~~$(2x - 3)(x + 7)$~~

	x	7
$2x$	$2x^2$	$14x$
3	$3x$	21

~~$2x^2 + 17x + 21$~~

41. **Multi Step** The height of a painting is twice its width x . You want a 3 inch wide wooden frame for the painting. The area of the frame alone is 216 square inches.

a. Draw a diagram that represents this situation.

b. Write a variable expression for the area of the frame alone.

$18x + 36$

c. What are the dimensions of the frame? **length is 26; width is 16**

