

9.2 Multiply Polynomials

pp. 562–568

EXAMPLE

Find the product.

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

b. $(5y + 6)(y - 3)$

Solution

a. Use a horizontal format.

$$(x^2 + 4x - 5)(2x - 1)$$

$$= x^2(2x - 1) + 4x(2x - 1) - 5(2x - 1)$$

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

$$= 2x^3 + 7x^2 - 14x + 5$$

Write product.

Distributive property

Distributive property

Combine like terms.

b. Use a vertical format.

STEP 1 Multiply by -3 .

$$\begin{array}{r} 5y + 6 \\ \times \quad y - 3 \\ \hline -15y - 18 \end{array}$$

STEP 2 Multiply by y .

$$\begin{array}{r} 5y + 6 \\ \times \quad y - 3 \\ \hline -15y - 18 \\ 5y^2 + 6y \end{array}$$

STEP 3 Add products.

$$\begin{array}{r} 5y + 6 \\ \times \quad y - 3 \\ \hline -15y - 18 \\ 5y^2 + 6y \\ \hline 5y^2 - 9y - 18 \end{array}$$

EXERCISES

Find the product.

13. $(x^2 - 2x + 1)(x - 3)$

14. $(y^2 + 5y + 4)(3y + 2)$

15. $(x - 4)(x + 2)$

16. $(5b^2 - b - 7)(b + 6)$

17. $(z + 8)(z - 11)$

18. $(2a - 1)(a - 3)$

19. $(6n + 7)(3n + 1)$

20. $(4n - 5)(7n - 3)$

21. $(3x - 2)(x + 4)$

EXAMPLES 1, 2, 3, and 4

 on pp. 562–563
 for Exs. 13–21

9.3 Find Special Products of Polynomials

pp. 569–574

EXAMPLE

 Find the product $(3x + 2)(3x - 2)$.

$$(3x + 2)(3x - 2) = (3x)^2 - 2^2$$

Sum and difference pattern

$$= 9x^2 - 4$$

Simplify.

EXERCISES

Find the product.

22. $(x + 11)^2$

23. $(6y + 1)^2$

24. $(2x - y)^2$

25. $(4a - 3)^2$

26. $(k + 7)(k - 7)$

27. $(3s + 5)(3s - 5)$

EXAMPLES 1 and 2

 on pp. 569–570
 for Exs. 22–27