

8-7 Study Guide and Intervention *(continued)****Multiplying Polynomials***

Multiply Polynomials The Distributive Property can be used to multiply any two polynomials.

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

$$\begin{aligned} (3x + 2)(2x^2 - 4x + 5) &= 3x(2x^2 - 4x + 5) + 2(2x^2 - 4x + 5) && \text{Distributive Property} \\ &= 6x^3 - 12x^2 + 15x + 4x^2 - 8x + 10 && \text{Distributive Property} \\ &= 6x^3 - 8x^2 + 7x + 10 && \text{Combine like terms.} \end{aligned}$$

The product is $6x^3 - 8x^2 + 7x + 10$.

Exercises

Find each product.

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

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

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

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

5. $(3k + 2)(k^2 + k - 4)$

6. $(2t + 1)(10t^2 - 2t - 4)$

7. $(3n - 4)(n^2 + 5n - 4)$

8. $(8x - 2)(3x^2 + 2x - 1)$

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

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

11. $(n^2 + 2n - 1)(n^2 + n + 2)$

12. $(t^2 + 4t - 1)(2t^2 - t - 3)$

13. $(y^2 - 5y + 3)(2y^2 + 7y - 4)$

14. $(3b^2 - 2b + 1)(2b^2 - 3b - 4)$