

7.2**Multiplying Polynomials**

For use with Exploration 7.2

Essential Question How can you multiply two polynomials?**1 EXPLORATION:** Multiplying Monomials Using Algebra Tiles**Work with a partner.** Write each product. Explain your reasoning.

a. $\boxed{+} \cdot \boxed{+} = \underline{\hspace{2cm}}$

b. $\boxed{+} \cdot \boxed{-} = \underline{\hspace{2cm}}$

c. $\boxed{-} \cdot \boxed{-} = \underline{\hspace{2cm}}$

d. $\boxed{+} \cdot \boxed{+} = \underline{\hspace{2cm}}$

e. $\boxed{+} \cdot \boxed{-} = \underline{\hspace{2cm}}$

f. $\boxed{-} \cdot \boxed{+} = \underline{\hspace{2cm}}$

g. $\boxed{-} \cdot \boxed{-} = \underline{\hspace{2cm}}$

h. $\boxed{+} \cdot \boxed{+} = \underline{\hspace{2cm}}$

i. $\boxed{+} \cdot \boxed{-} = \underline{\hspace{2cm}}$

j. $\boxed{-} \cdot \boxed{-} = \underline{\hspace{2cm}}$

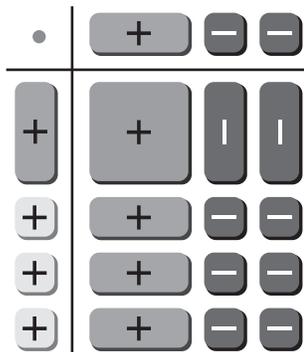
7.2 Multiplying Polynomials (continued)

2 EXPLORATION: Multiplying Binomials Using Algebra Tiles

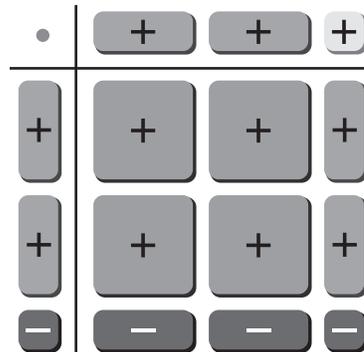
Go to *BigIdeasMath.com* for an interactive tool to investigate this exploration.

Work with a partner. Write the product of two binomials modeled by each rectangular array of algebra tiles. In parts (c) and (d), first draw the rectangular array of algebra tiles that models each product.

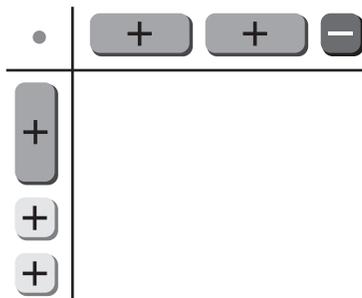
a. $(x + 3)(x - 2) =$ _____



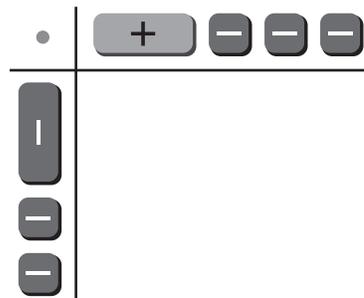
b. $(2x - 1)(2x + 1) =$ _____



c. $(x + 2)(2x - 1) =$ _____



d. $(-x - 2)(x - 3) =$ _____



Communicate Your Answer

- How can you multiply two polynomials?
- Give another example of multiplying two binomials using algebra tiles that is similar to those in Exploration 2.

7.2**Notetaking with Vocabulary**

For use after Lesson 7.2

In your own words, write the meaning of each vocabulary term.

FOIL Method

Core Concepts**FOIL Method**

To multiply two binomials using the FOIL Method, find the sum of the products of the

First terms, $\widehat{(x + 1)(x + 2)}$ \longrightarrow $x(x) = x^2$

Outer terms, $\widehat{(x + 1)(x + 2)}$ \longrightarrow $x(2) = 2x$

Inner terms, and $\widehat{(x + 1)(x + 2)}$ \longrightarrow $1(x) = x$

Last terms. $\widehat{(x + 1)(x + 2)}$ \longrightarrow $1(2) = 2$

$$(x + 1)(x + 2) = x^2 + 2x + x + 2 = x^2 + 3x + 2$$

Notes:

7.2 Notetaking with Vocabulary (continued)**Extra Practice**

In Exercises 1–6, use the Distributive Property to find the product.

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

2. $(b - 3)(b + 2)$

3. $(g + 2)(g + 4)$

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

5. $(3n - 4)(n + 1)$

6. $(r + 3)(3r + 2)$

In Exercises 7–12, use a table to find the product.

7. $(x - 3)(x - 2)$

8. $(y + 1)(y - 6)$

9. $(q + 3)(q + 7)$

10. $(2w - 5)(w - 3)$

11. $(6h - 2)(-3 - 2h)$

12. $(-3 + 4j)(3j + 4)$

7.2 Notetaking with Vocabulary (continued)

In Exercises 13–18, use the FOIL Method to find the product.

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

14. $(z + 3)(z + 2)$

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

16. $(2m - 1)(m + 2)$

17. $(4n - 1)(3n + 4)$

18. $(-q - 1)(q + 1)$

In Exercises 19–24, find the product.

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

20. $(2 - a)(3a^2 + 3a - 5)$

21. $(h + 1)(h^2 - h - 1)$

22. $(d + 3)(d^2 - 4d + 1)$

23. $(3n^2 + 2n - 5)(2n + 1)$

24. $(2p^2 + p - 3)(3p - 1)$