Date _

Investigating Algebra Activity: LESSON 8.1 Addition of Polynomials

For use before the lesson "Add and Subtract Polynomials"

Materials: algebra tiles

CUESTION How can you model the addition of polynomials with algebra tiles?

EXPLORE Add $2x^2 + 5x - 3$ and $x^2 - 3x + 1$

Algebra tiles can be used to model polynomials.





These 1-by-1 square tiles have an area of 1 square unit.

These 1-by-*x* rectangular tiles have an area of xsquare units.



These *x*-by-*x* rectangular tiles have an area of x^2 square units.

STEP 1 Model polynomials Use algebra tiles to model $(2x^2 + 5x - 3) + (x^2 - 3x + 1)$.





STEP 2 Combine like terms To add the polynomials, combine like terms. Group the x^2 -tiles, the *x*-tiles, and the 1-tiles.



STEP 3 Form zero pairs Rearrange the tiles to form zero pairs. Remove the zero pairs. The sum is $3x^2 + 2x - 2$.



In Exercises 1–4, use algebra tiles to find the sum. Sketch your solution. **1.** $(-x^2 + 2x - 1) + (4x^2 + 3x - 2)$ **2.** $(3x^2 + 3x + 2) + (-3x^2 - 5x - 3)$

- **3.** $(5x^2 x + 4) + (-3x^2 + 4x 6)$ **4.** $(2x^2 + 7) + (-4x^2 + 3x)$
- 5. Describe how to use algebra tiles to model subtraction of polynomials.

Use algebra tiles to find the difference.

- 6. $(x^2 + 2x + 1) (x^2 + 4)$
- **8.** $(3x^2 + 7) (-2x^2 + 1)$
- 7. $(2x^2 3x 3) (5 3x)$ **9.** $(-x^2 - 2x + 4) - (2x^2 - 5x + 1)$