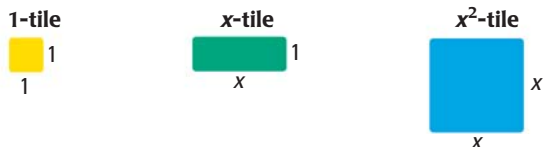


9.2 Multiplication with Algebra Tiles TEKS a.5, A.4.A

MATERIALS • algebra tiles

QUESTION How can you multiply binomials using algebra tiles?

You can use the following algebra tiles to model polynomials. Notice that the value of each tile is the same as its area.

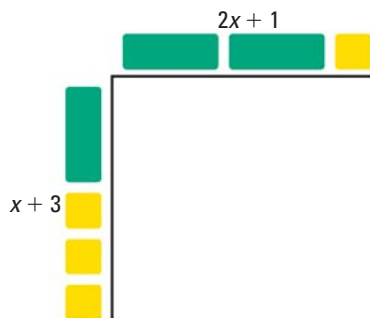


EXPLORE Multiply binomials

Find the product $(x + 3)(2x + 1)$.

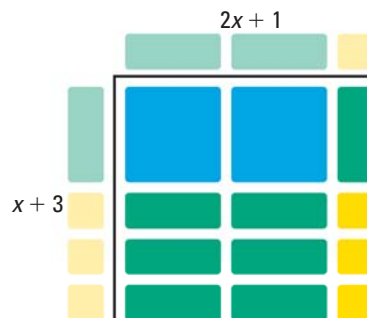
STEP 1 Model the rectangle's dimensions

Model each binomial with algebra tiles. Arrange the first binomial vertically and the second horizontally, as shown. These polynomials model the length and width of a rectangle.



STEP 2 Fill in the area

Fill in the rectangle with the appropriate algebra tiles.



STEP 3 Find the product

The rectangle you created represents the polynomial $2x^2 + 7x + 3$. So, $(x + 3)(2x + 1) = 2x^2 + 7x + 3$.

DRAW CONCLUSIONS Use your observations to complete these exercises

Use algebra tiles to find the product. Include a drawing of your model.

- $(x + 1)(x + 3)$
- $(x + 5)(x + 4)$
- $(2x + 1)(x + 2)$
- $(3x + 2)(x + 1)$
- $(3x + 2)(2x + 1)$
- $(4x + 1)(2x + 3)$
- REASONING** Find the product $x(2x + 1)$ and the product $3(2x + 1)$. What is the sum of these two products? What do your answers suggest you can do to find the product $(x + 3)(2x + 1)$?