9.6 More Factorization with Algebra Tiles

TEKS a.5

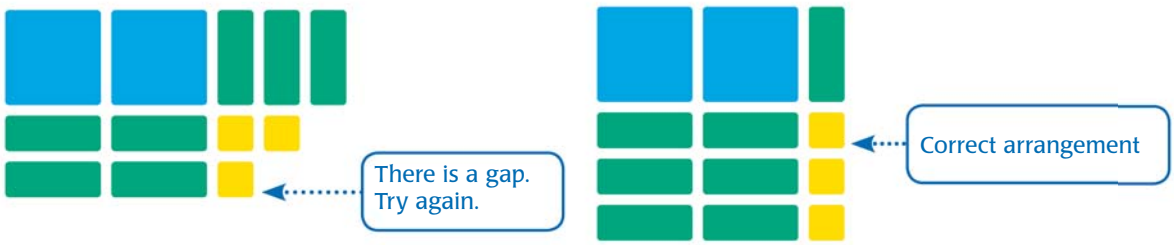
MATERIALS • algebra tiles

QUESTION How can you factor a trinomial using algebra tiles?

EXPLORE Factor the trinomial $2x^2 + 7x + 3$

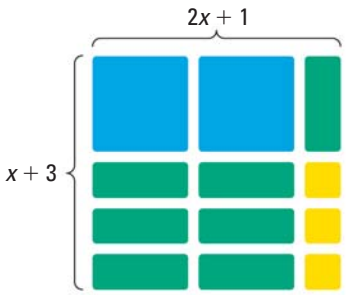
STEP 1 Make a rectangle

Model the trinomial with algebra tiles. Arrange all of the tiles to form a rectangle. You may have to try a few arrangements to make the rectangle. There can be no gaps or leftover tiles.



STEP 2 Find the side lengths

The side lengths of the rectangle represent the polynomials $x + 3$ and $2x + 1$. So $2x^2 + 7x + 3 = (x + 3)(2x + 1)$.



DRAW CONCLUSIONS Use your observations to complete these exercises

1. Use multiplication to show that $x + 3$ and $2x + 1$ are factors of the polynomial $2x^2 + 7x + 3$.

Use algebra tiles to factor the trinomial. Include a drawing of your model.

2. $2x^2 + 5x + 3$
3. $3x^2 + 5x + 2$
4. $4x^2 + 9x + 2$
5. $3x^2 + 13x + 4$
6. $4x^2 + 11x + 6$
7. $4x^2 + 8x + 3$
8. **REASONING** Factor the trinomial $2x^2 + 11x + 5$ into two binomials. How is the leading coefficient of the trinomial related to the leading coefficients of its binomial factors?