

Algebra Lab

Factoring Trinomials *Continued*

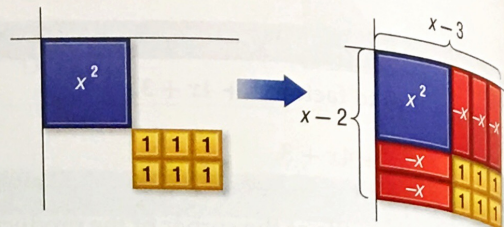
Activity 3 Factor $x^2 - bx + c$

Use algebra tiles to factor $x^2 - 5x + 6$.

Step 1 Model $x^2 - 5x + 6$.



Step 2 Place the x^2 -tile at the corner of the product mat. Arrange the 1-tiles into a 2-by-3 rectangular array as shown.



Step 3 Complete the rectangle with the x -tiles. The rectangle has a width of $x - 2$ and a length of $x - 3$.

Therefore, $x^2 - 5x + 6 = (x - 2)(x - 3)$.

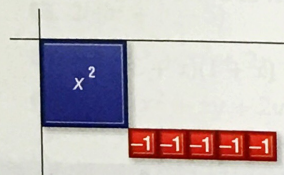
Activity 4 Factor $x^2 - bx - c$

Use algebra tiles to factor $x^2 - 4x - 5$.

Step 1 Model $x^2 - 4x - 5$.



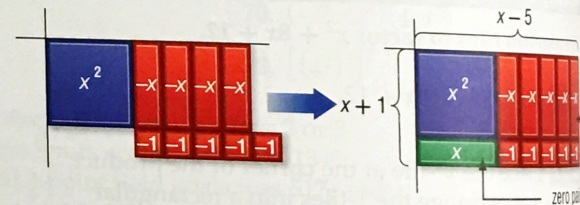
Step 2 Place the x^2 -tile at the corner of the product mat. Arrange the 1-tiles into a 1-by-5 rectangular array as shown.



Step 3 Place the x -tile as shown. Recall that you can add zero pairs without changing the value of the polynomial. In this case, add a zero pair of x -tiles.

The rectangle has a width of $x + 1$ and a length of $x - 5$.

Therefore, $x^2 - 4x - 5 = (x + 1)(x - 5)$.



Model and Analyze

Use algebra tiles to factor each trinomial.

1. $x^2 + 3x + 2$

2. $x^2 + 6x + 8$

3. $x^2 + 3x - 4$

4. $x^2 - 7x + 12$

5. $x^2 + 7x + 10$

6. $x^2 - 2x + 1$

7. $x^2 + x - 12$

8. $x^2 - 8x + 15$

Tell whether each trinomial can be factored. Justify your answer with a drawing.

9. $x^2 + 3x + 6$

10. $x^2 - 5x - 6$

11. $x^2 - x - 4$

12. $x^2 - 4$

13. **WRITING IN MATH** How can you use algebra tiles to determine whether a trinomial can be factored?