

Modeling Activity

(Use with Lesson 10-5)

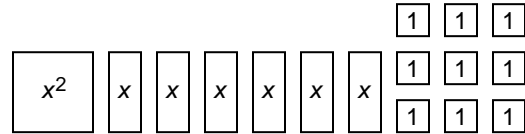
Factoring Perfect Squares

Materials: algebra tiles , product mat 

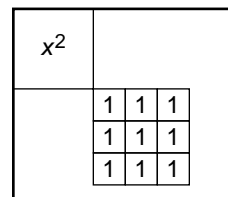
You can use algebra tiles as a model for factoring simple trinomials. When the rectangle formed by the tiles is a square, the trinomial is a perfect square.

Activity: Use algebra tiles to determine whether $x^2 + 6x + 9$ is a perfect square trinomial. If so, factor it.

► Model the polynomial $x^2 + 6x + 9$.

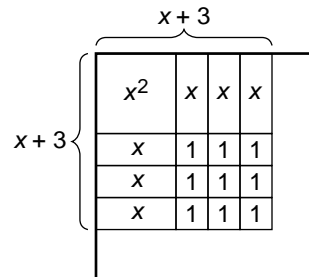


► Place the x^2 -tile at the corner of the product mat. Since you are attempting to make a square, arrange the 1-tiles into a 3-by-3 rectangular array.



► Complete the rectangle with the 6 x -tiles.

► The rectangle has a width of $x + 3$ units and a length of $x + 3$ units. Since the rectangle is a square, $x^2 + 6x + 9$ is a perfect square trinomial. Therefore, $x^2 + 6x + 9 = (x + 3)^2$.



MODEL

Use algebra tiles to determine whether each trinomial is a perfect square trinomial. If so, factor it.

- | | | |
|---------------------|---------------------|---------------------|
| 1. $x^2 - 6x + 9$ | 2. $x^2 + 6x - 9$ | 3. $x^2 + 7x + 6$ |
| 4. $x^2 + 4x + 4$ | 5. $x^2 - 10x + 25$ | 6. $x^2 - 2x + 1$ |
| 7. $x^2 + x - 2$ | 8. $4x^2 + 4x + 1$ | 9. $4x^2 - 4x + 1$ |
| 10. $3x^2 - 8x + 4$ | 11. $4x^2 - 8x + 4$ | 12. $4x^2 + 8x + 4$ |

WRITE

- List all the perfect square trinomials in this activity and their factors.
- What do you notice about the first term of each perfect square trinomial?
- What do you notice about the last term of each perfect square trinomial?
- What do you notice about the middle term of each perfect square trinomial?