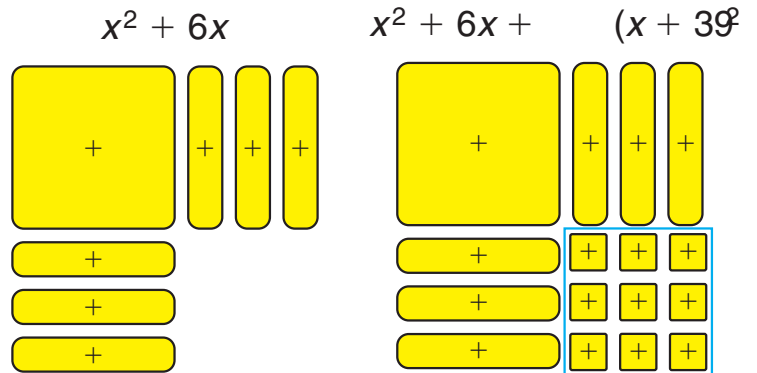# 5-4 Completing the Square
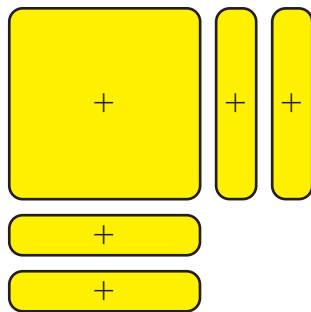
You can add a term to a quadratic expression of the form $x^2 + bx$ to form a perfect square trinomial. This is called completing the square.

$x^2 + 6x$ $\qquad$ $x^2 + 6x +$ $\qquad$ $(x + 3)^2$

The model shows completing the square for $x^2 + 6x$ by adding 9 unit tiles. The perfect-square trinomial that results is $x^2 + 6x + 9 = (x + 3)^2$.
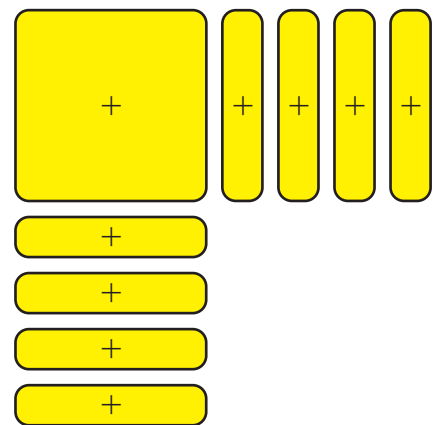

Complete the square for each model by adding unit tiles. Then write the perfect square trinomial that results.
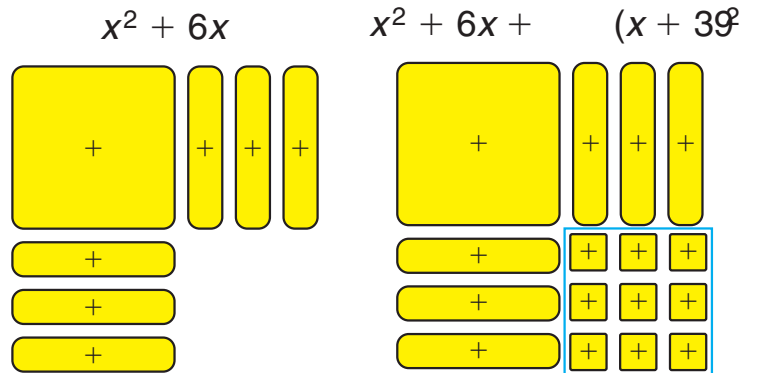
1. $x^2 + 4x$

2. $x^2 + x$

THINK AND DISCUSS

3. Tell how you can complete the square for $x^2 + 12x$ without using a model.

Holt Algebra 2

5-4 Completing the Square

You can add a term to a quadratic expression of the form $x^2 + bx$ to form a perfect square trinomial. This is called completing the square.

The model shows completing the square for $x^2 + 6x$ by adding 9 unit tiles. The perfect-square trinomial that results is $x^2 + 6x + 9 = (x + 3)^2$.
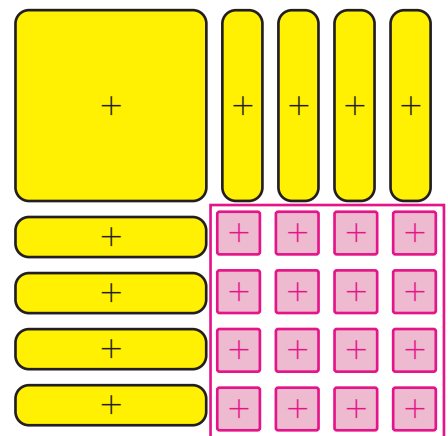
$$x^2 + 6x \qquad x^2 + 6x + \qquad (x + 3)^2$$

Complete the square for each model by adding unit tiles. Then write the perfect square trinomial that results.

1. $x^2 + 4x + 4 \quad (x + 2)^2$
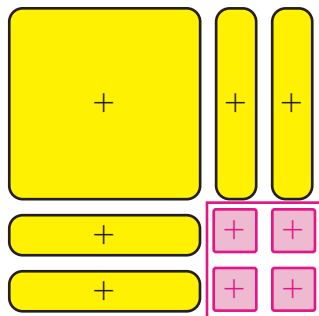
2. $x^2 + x + 16 \quad (x + 4)^2$

THINK AND DISCUSS

3. Tell how you can complete the square for $x^2 + 12x$ without using a model.   Divide 12 by 2 and then square the quotient. Because $\left(\frac{12}{2}\right)^2 = 36$, add 36 to $x^2 + 12x$ to complete the square.

Holt Algebra 2