3.3 Completing the square

Example 1:

Lets break down an expression using algebraic blocks.

$x^2 + 6x$

Example 2:

Solving a quadratic equation using square roots

$x^2 - 16x + 64 = 100$

Try on your own:

Solving a quadratic equation using square roots

$x^2 - 22x + 121 = 81$

Completing the square:

When given $x^2 - bx$, add $\left(\frac{b}{2}\right)^2$ to ***both sides*** of the equation

Example 3:

Lets make a "Perfect Square Trinomial"

Find the value of c that makes $x^2 + 14x + c$ a perfect square trinomial.

Example 4:

Solve $x^2 + 10x + 7 = 0$ using completing the square method **when a=1**

Example 5:

Solve $3x^2 + 12x + 15 = 0$ using completing the square method **when a≠1**

Spiral Review! How do we write a quadratic in vertex form ?

Example 6:

Write $y = x^2 - 12x + 18$ in vertex form

Example 7: Modeling with mathematics

The height y (in feet) of a baseball t seconds after it is hit can be modeled by the function

$$y = -16t^2 + 96t + 3.$$

Find the maximum height of the baseball.
How long does the ball take to hit the ground?

Homework/Classwork
3-19 odd, 25-29odd, 41-45 all, 55-59odd, and 63