

NAME _____

DATE _____

Module 13 Solving Quadratic Equations
of One Variable

Lesson 4 Solving Quadratic Equations
by Completing the Square



**guided
notes**

Lesson Objectives

- Determine the constant that makes a quadratic trinomial a perfect square.
- Write a perfect square trinomial as the square of a binomial.
- Solve quadratic equations by completing the square.

Given the expression $x^2 + bx$, to complete the square:

- Find half of _____.
- _____ the result.
- _____ that number to create a perfect square trinomial.

A perfect square trinomial of the form $x^2 + bx + \left(\frac{b}{2}\right)^2$ can be factored as $\left(x + \frac{b}{2}\right)^2$.

- 1 Complete the square. $x^2 - 5x + \underline{\hspace{2cm}}$
- 2 Factor: $x^2 - 5x + \frac{25}{4} \underline{\hspace{2cm}}$

To solve a quadratic equation by completing the square, follow these steps:

1. _____ the variable terms on one side of the equation.
 2. Make the leading coefficient equal to _____.
 3. Add $\left(\frac{b}{2}\right)^2$ to _____ sides of the equation. This completes the square and keeps the equation balanced.
 4. _____.
 5. _____ by evaluating square roots.
- 3 Solve by completing the square. $x^2 + 6x + 2 = -6$ _____

