Name: _____ Period: _____ Date: _____

Completing the Square Guided Notes

A **quadratic equation** is of the form:

$$ax^2 + bx + c = 0$$

Where, $a \neq 0$.

ax^2 → **Quadratic term**

bx → **Linear term**

c → **Constant term**

A **trinomial equation** is an equation having three terms or monomials on one side of the equation. The other side of the equation can be zero or a non-zero constant. It is written as:

$$ax^2 + bx + c = d$$

Where, $a \neq 0$.

Completing Squares

This method is used when finding the solution of quadratic equations using square roots. If one side of the equation (having the trinomial) is not a perfect square, we can make it a perfect square by adding a suitable constant number on both sides of the equation.

$$x^2 + bx + \left(\frac{b}{2}\right)^2 = \left(x + \frac{b}{2}\right)^2$$

Note that the term being added is the square of half the coefficient of linear term i.e. $\boldsymbol{b}$ in $\boldsymbol{x}$.

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Completing the Square Guided Notes

Problem 1: What is the value of b such that $x^2 - 14x + b$ is a perfect square trinomial?

Problem 2: What are the solutions of the equation $x^2 + 2x = 35$?