Solving Equations

Definition

An equation is a mathematical statement that asserts the equality of two expressions. The goal is to find the values of the variable(s) that satisfy the equation.

Types of Equations

1. **Linear Equations:** $ax + b = 0$

   - Example: Solve $2x + 5 = 11$

   - Solution: $2x = 6$ -> $x = 3$

2. **Quadratic Equations:** $ax^2 + bx + c = 0$

   - Example: Solve $x^2 - 5x + 6 = 0$

   - Solution: Factorization: $(x-2)(x-3) = 0$ -> $x = 2, 3$

3. **Systems of Equations:**

   - Example: Solve:

   $x + y = 5$

   $2x - y = 3$

   - Solution: Solve for x and y using substitution or elimination.

Solving Techniques

- **Factoring**

- **Quadratic Formula**: $x = (-b +/- \sqrt{b^2 - 4ac}) / 2a$

- **Graphing**: Intersections of graphs provide solutions.