Quadratic Equations Learning Materials

1. Standard Form

- A quadratic equation is an equation of the form $ax^2 + bx + c = 0$, where a, b, and c are constants and $a \neq 0$.

2. Solving Quadratic Equations

- **Factoring:** If the quadratic expression can be factored, set each factor equal to zero and solve for x.
- **Quadratic Formula:** $x = (-b \pm \sqrt{b^2 - 4ac}) / 2a$
- **Completing the Square:** A method to rewrite the quadratic equation in a form that can be solved by taking the square root.

3. The Discriminant

- The discriminant ($b^2 - 4ac$) tells us about the nature of the solutions:
  - If $b^2 - 4ac > 0$, there are two real solutions.
  - If $b^2 - 4ac = 0$, there is one real solution.
  - If $b^2 - 4ac < 0$, there are no real solutions (complex solutions).