Good morning, everyone. Today, I am presenting our math project focused on exploring the relationships in quadratic functions.

The primary objective of our project was to analyze how changes in the coefficients of a quadratic equation, in the form $ax^2 + bx + c = 0$, affect the graph's shape and position. We concentrated on three main aspects: the vertex, the axis of symmetry, and the roots.

Firstly, we examined the effect of varying coefficient $a$. When $a$ is positive, the parabola opens upwards, whereas a negative $a$ causes it to open downwards. The absolute value of $a$ dictates the width of the parabola, with larger values resulting in a narrower shape.

Secondly, the influence of the coefficient $b$ was studied. Adjusting $b$ shifts the parabola along the x-axis. We found that the axis of symmetry, calculated by $x = -\frac{b}{2a}$, provides valuable insight into these shifts.

Lastly, we considered the role of coefficient $c$, which affects the y-intercept. Changes in $c$ translate the parabola up or down along the y-axis without altering its shape.

To conclude, understanding these relationships in quadratic functions is crucial for applications in various fields such as physics, engineering, and economics. Thank you for your attention, and I welcome any questions you may have.