

8.6 Quadratic Functions In Vertex Form

The vertex of a quadratic is a very important point. If we know the coordinates of the vertex, we know the maximum or minimum of the quadratic function.

Example 1: Given the quadratic equation in vertex form, name the coordinates of the vertex.

$$F(x) = x^2 + 6x + 5 \text{ in vertex form is } f(x) = (x + 3)^2 - 4$$

The challenge is to get the quadratic equation from standard form to vertex form. We do this using completing the square.

Example 2: Given $f(x) = x^2 - 4x - 3$, convert to vertex form and name the vertex. Is the vertex a maximum or a minimum?

Example 3: Name the vertex of $f(x) = 3x^2 + 2x + 3$