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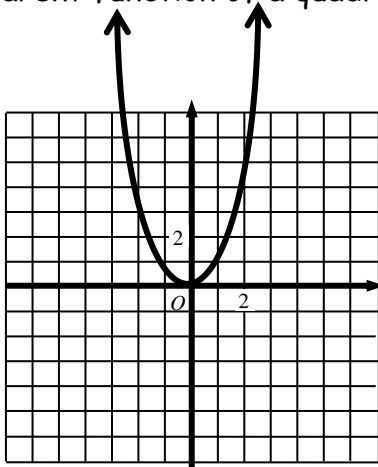
Reporting Category 5 Notes (A.9.D.)

Quadratic Functions are graphs in the shape of a parabola ("u" shape). Depending on the equation of a quadratic expression the graph can either open up or down.

The standard form for a quadratic equation is $Ax^2 + Bx + C = 0$.

Where A , B , & C are all numbers.

In the parent function of a quadratic: $y = x^2$, the $A = 1$, and the B & C are equal to zero.



The parent function of the quadratic is shown at the right. We can identify many components of a quadratic graph by looking at it.

The *vertex* is the maximum or minimum point on the graph. It will always be in the center of the "u".

A maximum means it is at the *top* of the "u".
A minimum means it is at the *bottom* of the "u".

The *line of symmetry* is the line that divides the graph in half. The line of symmetry always goes through the vertex point and is written in the form of an equation $x =$ *the x value at the vertex*.

The roots are where the quadratic graph crosses or touches the x-axis. The roots are also called x-intercepts, zeros, or solutions. Generally in a quadratic there will be two roots. Sometimes though there is only one or even none.

