

Quadratic Equations

The following equation is the standard form of the Quadratic equation:-

$$y=ax^2+bx+c$$
 [\[Quadratic Equation\]](#)

{By clicking this hypertext equation, you can load it into the Calculator}

To use it to calculate answers and graphs, you give the variable symbols a,b,c and x values via the Variable Box in the Calculator above. When you have done this, you can calculate it or graph it using the buttons on the Calculator.

The following equations give you the roots of the quadratic if they are real:-

$$x=\frac{-b+\sqrt{b^2-4ac}}{2a}$$
 [\[Quadratic Solution 1\]](#)

$$x=\frac{-b-\sqrt{b^2-4ac}}{2a}$$
 [\[Quadratic Solution 2\]](#)

The following equations give you a vertical line that shows the roots of the equation on a graph. You first make a graph of the Quadratic Equation, then you graph the next two equations on top by using the -Over (lay) button in the Calculator:-

$$x=\text{inv: } \frac{-b+\sqrt{b^2-4ac}}{2a}$$
 [\[To graph Quadratic Solution 1\]](#)

$$x=\text{inv: } \frac{-b-\sqrt{b^2-4ac}}{2a}$$
 [\[To graph Quadratic Solution 2\]](#)

You are always free to not use symbols, but numbers instead, as in $\frac{3*21^2 - 5*21 + 12}{}$ but if you were to do a similar equation next, you would have to type it all in again. With symbols, you set their values (if they need to be changed) and calculate using the standard form of the equation.