# The Differences between Quadratic Functions and Quadratic Equations

## QUADRATIC FUNCTIONS

A quadratic function is a rule that gives a single output number for every input number. Its equation can be written in the form $y = ax^2 + bx + c.$
The rule can be expressed as a table of values or in words.

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A quadratic function involves two variables: for example, x and y.

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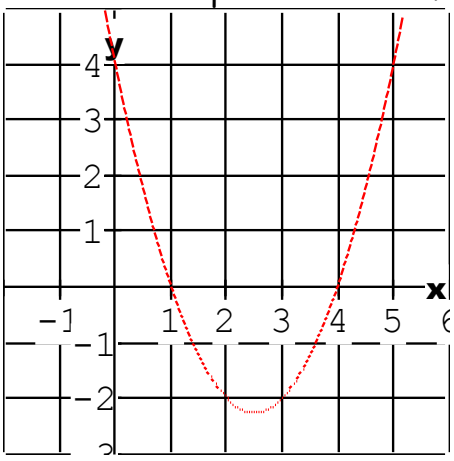
The graph of a quadratic function consists of all points (x,y) whose coordinates satisfy (make the equation true) the equation. It is a parabola drawn on a grid.

The x-intercepts of the graph are called the ZEROES of the function.

$y = x^2 - 5x + 4$

$y = (x-1)(x-4)$

The zeroes are 1 and 4.
The x-intercepts are 1 and 4.




## QUADRATIC EQUATIONS

A quadratic equation is a statement that two expressions are equal. It can be written in the form $ax^2 + bx + c = 0$.

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A quadratic equation involves only one variable: for example, x.

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The graph of a quadratic equation consists of point(s) on a number line that correspond to the numbers that satisfy the equation.

These numbers are called its ROOTS.

$x^2 - 5x + 4 = 0$

$(x-1)(x-4) = 0$

The roots are 1 and 4.