

# The quadratic formula:

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

The formula gives you two possible results for the values of "x" that satisfy the quadratic equation  $y = ax^2 + bx + c$ .

The two possible values of "x" correspond to the x-coordinates of the points where the parabolic curve intersects the x-axis, also known as the x-intercepts or roots of the quadratic equation.

If the discriminant ( $b^2 - 4ac$ ) is positive, then the quadratic equation has two real roots, and the parabolic curve intersects the x-axis at two distinct points. In this case, you will get two different values of "x" when you use the quadratic formula.

If the discriminant is zero, then the quadratic equation has one real root with a multiplicity of two, and the parabolic curve touches the x-axis at exactly one point. In this case, you will get the same value of "x" twice when you use the quadratic formula.

If the discriminant is negative, then the quadratic equation has two complex roots, and the parabolic curve does not intersect the x-axis. In this case, you will get two different complex values of "x" when you use the quadratic formula.

In summary, the two possible results from the quadratic formula correspond to the x-coordinates of the points where the parabolic curve intersects the x-axis, and the number and nature of these points depend on the value of the discriminant.