

SOLVING QUADRATICS BY QUADRATIC FORMULA

ALL QUADRATICS CAN BE SOLVED USING
QUADRATIC FORMULA

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

1. Why does it have \pm ?
2. Where do a,b,c come from?

MEMORIZE THIS BEFORE ALG 2!

STANDARD FORM

$$ax^2 + bx + c$$

QUADRATIC FORMULA: DETERMINANT

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

→ DETERMINANT

Determinant:

Tell type of roots.

$$b^2 - 4ac$$

QUADRATIC FORMULA: DETERMINANT

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

→ DETERMINANT

$b^2 - 4ac > 0$ +	2 Roots (AKA: 2 Real Roots)
$b^2 - 4ac = 0$ 0	1 Root (AKA: Double Root)
$b^2 - 4ac < 0$ -	0 Roots (AKA: Imaginary Roots)

$$x^2 + 2x - 15 = 0$$

Equation (a,b,c):

$$a=1 \quad b=2 \quad c=-15$$

Discriminant: b^2-4ac

$$(2)^2 - 4(1)(-15)$$

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

What Kind of Solution?

$$64 > 0$$

2 Roots

Quadratic Formula:

$$x = \frac{-(2) \pm \sqrt{(2)^2 - 4(1)(-15)}}{2(1)}$$
$$\boxed{-3, -5}$$

$$2x^2 - 4x + 3 = 0$$

<p>Equation(a,b,c):</p> <p>$a = 2$ $b = -4$ $c = 3$</p>	<p>Discriminant: $b^2 - 4ac$</p> <p>$(-4)^2 - 4(2)(3)$</p> $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$
<p>What Kind of Solution?</p> <p>$-8 < 0$</p> <p>9 No Roots</p>	<p>Quadratic Formula:</p> <p>$\frac{-(-4) \pm \sqrt{(-4)^2 - 4(2)(3)}}{2(2)}$</p> <p><u>None</u></p>