What is the Quadratic Formula?

It gives the solutions of the equation $ax^2 + bx + c = 0$.

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

Use parentheses when Substituting

$(b)^2$ will always be a positive value.

$6x^2 - x - 15 = 0$	$2x^2 + 7x + 15 = 0$	$3x^2 - 16x = 0$
$a = 6$ $b = -1$ $c = -15$	$a = 2$ $b = 7$ $c = 15$	$a = 3$ $b = -16$ $c = 0$

$x = \dfrac{-(-1) \pm \sqrt{(-1)^2 - 4(6)(-15)}}{2(6)}$

$\dfrac{1 \pm \sqrt{1 + 361}}{12}$

$\dfrac{1 \pm \sqrt{361}}{12}$

$+ \rightarrow \dfrac{1 + \sqrt{361}}{12} = \dfrac{1+19}{12} = \dfrac{20}{12}$

$- \rightarrow \dfrac{1 - \sqrt{361}}{12} = \dfrac{1-19}{12} = \dfrac{-18}{12}$

$x = \dfrac{20}{12} = \dfrac{5}{3}$ $x = \dfrac{-18}{12} = \dfrac{-3}{2}$

$x = 1.\overline{6}$ $x = -1.5$

$x = \dfrac{-(7) \pm \sqrt{(7)^2 - 4(2)(15)}}{2(2)}$

$\dfrac{-7 \pm \sqrt{49 - 120}}{4}$

$\dfrac{-7 \pm \sqrt{-71}}{4}$

No Real Solution

$x = \dfrac{-(-16) \pm \sqrt{(-16)^2 - 4(3)(0)}}{2(3)}$

$\dfrac{16 \pm \sqrt{256 - 0}}{6}$

$+ \swarrow \searrow$

$\dfrac{16 + \sqrt{256}}{6}$ $\dfrac{16 - \sqrt{256}}{6}$

$\dfrac{16 + 16}{6}$ $\dfrac{16 - 16}{6}$

$x = \dfrac{32}{6} = \dfrac{16}{3}$ $x = \dfrac{0}{6} = 0$

$x = 5.\overline{3}$