The Quadratic Formula:

For $ax^2 + bx + c = 0$,

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

b^2-4ac is called the DISCRIMINANT

Ex. 1 Solve. Give EXACT solutions then decimals.

a) $0 = x^2 - 3x + 1$

$a=1 \quad b=-3 \quad c=1$

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

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

$$x = \frac{3 \pm \sqrt{5}}{2}$$ → Exact Final Answer

$$x = \frac{3+\sqrt{5}}{2} \text{ & } x = \frac{3-\sqrt{5}}{2}$$

$x \doteq 2.62$ $x \doteq 0.38$

b) $2x(x - 3) = 7$

$2x^2-6x-7=0$

.... !! CANNOT FACTOR!

USE QUAD!

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

$$x = \frac{-(-6) \pm \sqrt{(-6)^2-4(2)(-7)}}{2(2)}$$

$$x = \frac{6 \pm \sqrt{36+56}}{4}$$

$$x = \frac{6 \pm \sqrt{92}}{4}$$ EXACT

$$x = \frac{6+\sqrt{92}}{4} \text{ & } x = \frac{6-\sqrt{92}}{4}$$

$\doteq 3.90$ $x \doteq -0.9$