

Quadratic Formula

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

input a, b and c in

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

e.g. $6x^2 + 3x - 2 = 0$, what is x ? give solutions to 3 s.f.

$$x = \frac{-3 \pm \sqrt{3^2 - 4 \times 6 \times -2}}{2 \times 6}$$

$$= \frac{-3 \pm \sqrt{9 + 48}}{2 \times 6}$$

$$= \frac{-3 \pm \sqrt{57}}{12}$$

$$= 0.379 \quad \text{or} \quad -0.879$$

e.g. $4x^2 + 9x = 3$, what is x ? give solutions to 3 s.f.

$$x = \frac{-9 \pm \sqrt{9^2 - 4 \times 4 \times -3}}{2 \times 4}$$

$$= \frac{-9 \pm \sqrt{81 - 48}}{8}$$

$$= \frac{-9 \pm \sqrt{33}}{8}$$

$$= -0.407 \quad \text{or} \quad -1.84$$

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