

The quadratic formula

Use it when the quadratic is not yet in the form $ax^2 + bx + c = 0$.

1 Brackets

Multiply out any brackets first.

$$x(x + p) = x^2 + px$$

*a minus in front of a bracket
changes every sign inside*

2 Fractions

Multiply every term by the bottom of the fraction.

$$\boxed{\text{every term}} \times \boxed{\text{bottom}}$$

x on the bottom? multiplying by x gives x^2

3 Make it = 0

Move every term to the side with the x^2 , so the other side is 0.

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

*do the same to both sides
keep the x^2 term positive*

4 a, b and c

Collect like terms. Read off a, b and c.

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

*keep the sign in front of each term
no number term? then $c = 0$*

5 The formula

Put a, b and c in. Work it out with + and with -.

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

b negative? then -b is positive

6 Which answers

Round both. Do they both fit?

$$x = \boxed{\text{answer 1}} \text{ or } x = \boxed{\text{answer 2}}$$

a length or a time? only a positive answer fits

The Maths Habit

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