

Solving Quadratics without factorising

Can you find the
the mistake?
1 2 3 4 5 6 7 8 9

$$x^2 + 5x + 1 = 0$$

$$\text{Solution: } x = \frac{-5 \pm \sqrt{5^2 - 4 \times 0 \times 1}}{2 \times 0} = \frac{-5 \pm \sqrt{25}}{0} = \frac{-5 \pm 5}{0} = \frac{-10}{0} \text{ or } 0$$

$$7x^2 - 25x + 2 = 0$$

$$\text{Solution: } x = -25 \pm \frac{\sqrt{-25^2 - 4 \times 7 \times 2}}{2 \times 7} = -25 \pm \frac{\sqrt{-625 - 56}}{14} = -25 \pm \frac{\sqrt{-681}}{14}$$

$$4x^2 + x - 7 = 0$$

$$\text{Solution: } x = \frac{-1 \pm \sqrt{1^2 - 4 \times 4 \times -7}}{2 \times 4} = \frac{-1 \pm \sqrt{1 - 112}}{8} = \frac{-1 \pm \sqrt{-111}}{8}$$

$$11x^2 = 7 - 2x$$

$$\text{Solution: } x = \frac{2 \pm \sqrt{(-2)^2 - 4 \times 11 \times 7}}{2 \times 11} = \frac{2 \pm \sqrt{4 - 308}}{22} = \frac{2 \pm \sqrt{304}}{22} = \frac{1}{11} \pm \frac{\sqrt{152}}{11}$$

$$x^2 - 6x - 3 = 0$$

$$\text{Solution: } (x - 3)^2 - 3 = 0 \text{ and so } (x - 3)^2 = 3$$

$$\text{Therefore } x - 3 = \sqrt{3} \text{ and so } x = 3 + \sqrt{3}$$

$$x^2 - 3x + 7 = 0$$

$$\text{Solution: } (x - 1.5)^2 + 2.25 + 7 = 0 \text{ and so } (x - 1.5)^2 = 9.25$$

$$\text{Therefore } x - 1.5 = \pm \sqrt{9.25} \text{ and so } x = -1.5 \pm \sqrt{9.25}$$

$$x^2 + 8x + 6 = 0$$

$$\text{Solution: } (x + 4)^2 - 10 = 0 \text{ and so } x^2 + 16 - 10 = 0$$

$$\text{Therefore } x^2 = -6 \text{ and so } x = \pm \sqrt{-6}$$

$$3x^2 + 18x - 1 = 0$$

$$\text{Solution: } 3(x + 9)^2 - 82 = 0 \text{ and so } (x + 9)^2 = 82/3$$

$$\text{Therefore } x + 9 = \pm \sqrt{\frac{82}{3}} \text{ and so } x = -9 \pm \sqrt{\frac{82}{3}}$$

Solving Quadratics without factorising

Solve by using the quadratic formula

1) $2x^2 + 6x + 3 = 0$

2) $6x^2 - 11x + 3 = 0$

3) $2x^2 + 5x - 1 = 0$

4) $x^2 + 4x + 1 = 0$

5) $5x^2 - 5x = 0$

6) $8x^2 + 8x + 2 = 0$

7) $x^2 - 7x + 2 = 0$

8) $3x^2 + 4x + 6 = 0$

Solve by completing the square

1) $x^2 - 10x + 3 = 0$

2) $x^2 - 7x + 1 = 0$

3) $x^2 + 12x - 5 = 12$

4) $x^2 + 3x + 4 = 9$

5) $4x^2 + 8x - 12 = 0$

6) $3x^2 + 6x - 9 = 0$

7) $5x^2 + 10x - 16 = 8$

8) $2x^2 + 6x + 5 = 12$



Now, it's
your
turn to
try!