# QUADRATIC FORMULA

**Task 1 – Solve each of the following equations using the quadratic formula.**

1) $x^2 - 4x - 5 = 0$

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

3) $x^2 - 6x + 5 = 0$

4) $4x^2 + 4x - 3 = 0$

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

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

**Task 2 – Work out the value of $x$. Give your answers in the form $x = a + b\sqrt{c}$ where $a$, $b$ and $c$ are constants.**

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

8) $x^2 - 4x - 7 = 0$

9) $x^2 + 10x + 17 = 0$

10) $x^2 - 8x + 3 = 0$

11) $x^2 - 2x - 19 = 0$

12) $x^2 - 12x + 31 = 0$

13) $2x^2 - 4x - 1 = 0$

14) $3x^2 + 6x - 1 = 0$

15) $2x^2 - 4x - 3 = 0$

**Task 3 – Solve the following equations. Give your answers to 2 decimal places.**

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

17) $5x^2 - 2x - 9 = 0$

18) $4x^2 - 8x + 1 = 0$

19) $6x^2 + 5x - 8 = 0$

20) $9x^2 - 12x + 2 = 0$

21) $-8x^2 + 6x + 5 = 0$

22) $10x^2 + 3x - 5 = -3$

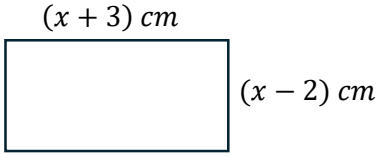
23) $3x^2 - 7x + 10 = 13$

24) $15x^2 + 2x + 7 = 10$

25) $16x^2 - 15x + 1 = 3x - 4$

**Challenge**

26) **A rectangle is shown below. The area of the rectangle is 40 cm². Work out the value of $x$. Give your answer to 2 decimal places.**

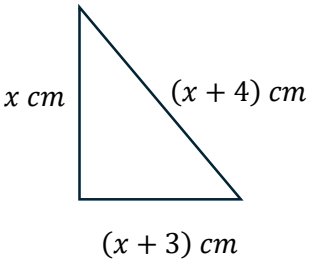



27) **A ball is projected upward from a platform 5 m above the ground with velocity 18 m/s. Its height is given by:**

$$h = -4.9t^2 + 18t + 5$$

**Work out the time when the ball hits the ground. Give your answer to 2 decimal places.**

28) **A right-angled triangle is shown below.**




**Work out the values of $x$. Give your answers in the form $x = a \pm b\sqrt{c}$.**

**29) Solve for $x$. Give your answers to 2 decimal places.**

$$\frac{3}{x-2}+\frac{5}{x+1}=2$$

**30) Find $k$ such that $x^2+kx+9=0$ has exactly one solution.**