

**YEAR 11**

Quadratic Equations

Get everything on one side equal to zero, factorise, then set each bracket to zero. A quadratic usually has two solutions, and both are wanted.

Section A · Solving by factorising

① Solve $x^2 + 5x + 6 = 0$ **$x = -3$ or $x = -2$**

② Solve $x^2 - 3x - 4 = 0$ **$x = -1$ or $x = 4$**

③ Solve $x^2 + 3x - 10 = 0$ **$x = -5$ or $x = 2$**

④ Solve $x^2 - 7x + 6 = 0$ **$x = 1$ or $x = 6$**

⑤ Solve $x^2 - 16 = 0$ **$x = -4$ or $x = 4$**

⑥ Solve $x^2 - 7x = 0$ **$x = 0$ or $x = 7$**

Section B · Harder factorising

⑦ Solve $2x^2 + 7x + 3 = 0$ by factorising. **$x = -3$ or $x = -\frac{1}{2}$**

⑧ Solve $3x^2 - 10x + 8 = 0$ by factorising. **$x = 2$ or $x = \frac{4}{3}$**

⑨ Factorise $x^2 - 9$ and hence solve $x^2 - 9 = 0$. **$(x + 3)(x - 3)$; $x = -3$ or $x = 3$**

⑩ Solve $(x - 4)^2 = 25$. **$x = 9$ or $x = -1$**

Section C · Graphs and problems

⑪ The graph of $y = x^2 - 4x + 3$ crosses the x-axis where $y = 0$. Find the two x-intercepts. **$x = 1$ and $x = 3$**

⑫ Where does the graph of $y = x^2 - 4x + 3$ cross the y-axis? **$(0, 3)$**

⑬ The graph of $y = x^2 - 4x + 3$ is symmetrical. Write the equation of its line of symmetry. **$x = 2$**

- 14 Find the coordinates of the turning point of $y = x^2 - 4x + 3$. **(2, -1)**
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- 15 A rectangle has sides x cm and $(x + 3)$ cm and an area of 40 cm^2 . Form an equation and find x . **$x^2 + 3x - 40 = 0$, so $x = 5$**
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