

**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.

Name: _____

Date: _____

Score: _____

Section A · Solving by factorising

Find two numbers that multiply to the last term and add to the middle one.

① Solve $x^2 + 5x + 6 = 0$

② Solve $x^2 - 3x - 4 = 0$

③ Solve $x^2 + 3x - 10 = 0$

④ Solve $x^2 - 7x + 6 = 0$

⑤ Solve $x^2 - 16 = 0$

⑥ Solve $x^2 - 7x = 0$

Section B · Harder factorising

With a number in front of x^2 , try the factor pairs of both ends.

⑦ Solve $2x^2 + 7x + 3 = 0$ by factorising.

⑧ Solve $3x^2 - 10x + 8 = 0$ by factorising.

9 Factorise $x^2 - 9$ and hence solve $x^2 - 9 = 0$.

10 Solve $(x - 4)^2 = 25$.

Section C • Graphs and problems

The solutions of the equation are where the graph crosses the x-axis.

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

12 Where does the graph of $y = x^2 - 4x + 3$ cross the y-axis?

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

14 Find the coordinates of the turning point of $y = x^2 - 4x + 3$.

15 A rectangle has sides x cm and $(x + 3)$ cm and an area of 40 cm^2 . Form an equation and find x .
