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QUESTION WORKBOOK

# Quadratic functions

Algebra and functions · Year 12–13

7 questions · 20 marks

PRINT EDITION

**SECTION A** · Warm-up

- A1** Express  $x^2 + 8x + 3$  in the form  $(x + p)^2 + q$ , and state the minimum point of the curve  $y = x^2 + 8x + 3$ . [2]

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- A2** Use the discriminant to determine how many real roots  $2x^2 - 3x + 5 = 0$  has. [2]

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**SECTION B** · Standard

- B1** Express  $3x^2 - 12x + 5$  in the form  $a(x + p)^2 + q$ , and state the minimum point. [4]

- B2** Find the values of  $k$  for which  $x^2 + kx + 25 = 0$  has a repeated root. [3]

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- B3** The equation  $kx^2 + 4x + 1 = 0$  has two distinct real roots. Find the set of possible values of  $k$ . [3]

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- B4** Solve  $9^x - 10 \times 3^x + 9 = 0$ . [3]

### SECTION C · Stretch

- C1** Solve  $x^4 - 5x^2 + 4 = 0$ . [3]