InkMaths

QUESTION WORKBOOK

Quadratic functions

Algebra and functions · Year 12–13

7 questions · 23 marks

PRINT EDITION

inkphysics.co.uk/maths/ · youtube.com/@InkPhysics

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 $y = x^2 + 8x + 3$. [3]

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

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. [2]

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

B4 Solve $9^x - 10 \times 3^x + 9 = 0$. [4]

SECTION C · Stretch

C1 Given that the equation $(k + 1)x^2 + 4kx + 9 = 0$ has a repeated root, find the two possible values of k. [5]