

Quadratics

Question Paper

Level	International A Level
Subject	Maths
Exam Board	CIE
Topic	Quadratics
Sub Topic	
Booklet	Question Paper

Time Allowed: 45 minutes

Score: /37

Percentage: /100

Grade Boundaries:

A*	A	B	C	D	E	U
>85%	77.5%	70%	62.5%	57.5%	45%	<45%

- 1 Express $2x^2 - 12x + 7$ in the form $a(x + b)^2 + c$, where a , b and c are constants. [3]
- 2 Find the set of values of k for which the line $y = 2x - k$ meets the curve $y = x^2 + kx - 2$ at two distinct points. [5]
- 3 (i) Express $4x^2 - 12x$ in the form $(2x + a)^2 + b$. [2]
(ii) Hence, or otherwise, find the set of values of x satisfying $4x^2 - 12x > 7$. [2]
- 4 Solve the inequality $x^2 - x - 2 > 0$. [3]
- 5 The equation $x^2 + px + q = 0$, where p and q are constants, has roots -3 and 5 .
(i) Find the values of p and q . [2]
(ii) Using these values of p and q , find the value of the constant r for which the equation $x^2 + px + q + r = 0$ has equal roots. [3]
- 6 Find the set of values of m for which the line $y = mx + 4$ intersects the curve $y = 3x^2 - 4x + 7$ at two distinct points. [5]

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- 7 Find the set of values of k for which the line $y = kx - 4$ intersects the curve $y = x^2 - 2x$ at two distinct points. [4]
- 8 Find the real roots of the equation $\frac{18}{x^4} + \frac{1}{x^2} = 4$. [4]
- 9 Find the coordinates of the points of intersection of the line $y + 2x = 11$ and the curve $xy = 12$. [4]