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PURE MATH

ALGEBRA AND FUNCTION

Level & Board	EDEXCEL (A-LEVEL)
TOPIC:	QUADRATICS
PAPER TYPE:	QUESTION PAPERS 6
TOTAL QUESTIONS	8
TOTAL MARKS	38

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Questions

Q1.

- (a) Using algebra, find all solutions of the equation

$$3x^3 - 17x^2 - 6x = 0$$

(3)

- (b) Hence find all real solutions of

$$3(y - 2)^6 - 17(y - 2)^4 - 6(y - 2)^2 = 0$$

(3)

(Total for question = 6 marks)

Q2.

The quadratic equation $kx^2 + (k - 3)x + 1 = 0$ has two equal real roots.
Find the possible value of k.

(4)

(Total for question = 4 marks)

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Q3.

One solution of the equation $kx^2 + (3k + 1)x - 8 = 0$ is $x = -4$

Find

(a) The value of k ,

(3)

(b) The second possible value of x .

(3)

(Total for question = 6 marks)

Q4.

Find the value of k so that the equation has equal root

$$(k + 3)x^2 + 2(k + 3)x + 4 = 0$$

(5)

(Total for question = 5 marks)

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Q5.

The quadratic equation $x^2 - 4x - 1 = 2p(x - 5)$, where p is a constant, has two equal roots. Calculate the possible values of p .

(5)

(Total for question = 5 marks)

Q6.

Given that the equation $2qx^2 + qx - 1 = 0$, where q is a constant, has no real roots,

(a) Show that $q^2 + 8q < 0$.

(2)

(b) Hence find the set of possible values of q .

(3)

(Total for question = 5 marks)

Q7.

How do you express $4 - 3x - x^2$ in the form of $a - (x + b)^2$?

(4)

(Total for question = 4 marks)

Q8.

Find algebraically the solution set of the equation

$$|x^2 + 13x + 21| = 21$$

(5)

(Total for question = 5 marks)



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- CIE & EDEXCEL Examiner since 2015
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