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# **PURE MATH**

## ALGEBRA AND FUNCTION

Level & Board	EDEXCEL (A-LEVEL)
TOPIC:	QUADRATICS
PAPER TYPE:	QUESTION PAPER 2
TOTAL QUESTIONS	8
TOTAL MARKS	47

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#### **Questions**

**Q1.** Find the values of k, if the quadratic equation  $3x^2 - k\sqrt{3}x + 4 = 0$  has equal roots.

(4) (Total for question = 4 marks)



#### Q2.

Find the value of k so that the equation has equal root  $(k+3)x^2 + 2(k+3)x + 4 = 0$ 

(Total for question = 8 marks)



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For what values of k, the equation  $9x^2 + 6kx + 4 = 0$  has equal roots?

(5) (Total for question = 5 marks)



Q4.

f(x) = x<sup>2</sup> + 4kx + (3 + 11k), where k is a constant
(a) Express f(x) in the form (x + p)<sup>2</sup> + q, where p and q are constants to be found in term of k. (3) given that the equation f(x) = 0 has no real roots.
(b) find the set of possible values of k. (4) given that k = 1, (4)
(c) sketch the graph of y = f(x), showing the coordinates of any point at which the graph crosses a coordinate axes. (3) (Total for question = 10 marks)

Q3.

Q5.

The roots of the equation  $x^3 + 2x^2 + 10x + k = 0$  where k is a constant, are 1, r,  $r^2$  what is the value of k?

#### (Total for question = 5 marks)

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Q6.

The quadratic equation  $x^2 + 3px + p = 0$ , where p is a non-zero constants. Find the value of p.

> (4) (Total for question = 4 marks)

### Q7.

The roots of the equation  $x^2 - kx + 28 = 0$  are y and y + 3. What is the value of k?

(4)

(Total for question = 4 marks)

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**Q8**.

The equation  $kx^2 + 4x + (5 - k) = 0$ , where k is a constant, has 2 different real solutions for x.

(a) Show that *k* satisfies

$$kx^2 - 5k + 4 > 0.$$

(3)

(b) Hence find the set of possible values of *k*.

(4)





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# **DR. ASHAR RANA**



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