

## CHEMISTRY ONLINE

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## PURE MATH

## ALGEBRA AND FUNCTION

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Level & Board
EDEXCEL (A-LEVEL)
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TOPIC: QUADRATICS individual/ company/organization involved in copyright abuse.

## Questions

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

Q3.
For what values of $k$, the equation $9 x^{2}+6 k x+4=0$ has equal roots?
(5)
(Total for question = 5 marks)

## Q4.

$$
f(x)=x^{2}+4 k x+(3+11 k), \quad \text { where } k \text { is a constant }
$$

(a) Express $f(x)$ in the form $(x+p)^{2}+q$, where $p$ and $q$ are constants to be found in term of k .
given that the equation $f(x)=0$ has no real roots.
(b) find the set of possible values of k .
given that $k=1$,
(c) sketch the graph of $y=f(x)$, showing the coordinates of any point at which the graph crosses a coordinate axes.

Q5.
The roots of the equation $x^{3}+2 x^{2}+10 x+k=0$ where k is a constant, are $1, \mathrm{r}, r^{2}$ what is the value of k ?
(Total for question = 5 marks)

Q6.
The quadratic equation $x^{2}+3 p x+p=0$, where p is a non-zero constants. Find the value of $p$.
(4)
(Total for question = 4 marks)

Q7.
The roots of the equation $x^{2}-k x+28=0$ are y and $\mathrm{y}+3$. What is the value of $k$ ?

Q8.
The equation $k x^{2}+4 x+(5-k)=0$, where $k$ is a constant, has 2 different real solutions for $x$.
(a) Show that $k$ satisfies

$$
k x^{2}-5 k+4>0
$$

(3)
(b) Hence find the set of possible values of $k$.
(Total for question = 7 marks)


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