

Year 10 Mathematics
Extension Paper



MLC
SCHOOL

NAME:

CLASS:

Date: Thursday 11th September 2008

Time allowed: 90 minutes in total for the two papers

- Outcomes to be assessed:
- 5.3 Solves quadratic equations
 - 5.3 Solves simultaneous equations involving quadratics
 - 5.3 Draws and interprets a variety of graphs including parabolas, cubics, exponentials and circles
 - 5.3 Probability – solves problems involving compound events.

- Performance Criteria:
- logical, concise working and neat, clear diagrams
 - correct solutions and reasoning ability
 - approved calculators should be used

	Mark	NE	P	S	H
Quadratics eqns 5.3	/13				
Simultaneous eqns 5.3	/16				
Non-linear graphs 5.3	/11				
Probability 5.3	/26				
Total:	/66				

Question	Answer	Marks
1	How many solutions are there to the equation $2(2x + 1)(9x + 7) = 0$?	1
2	Find the solution(s) to the following equation $w(w + 2) = 0$	1
3	Factorise and solve $c^2 + 7c + 12 = 0$	2

4	Use the quadratic formula to solve $2x^2 + 3x = 4$. Leave your answer in surd form.	3
5	Using the method of completing the squares solve $x^2 + 14x + 17 = 0$. Leave your answer in simplest surd form.	3

6

Use the substitution $x = y^2$ to factorise and solve the equation
 $36y^4 - 25y^2 + 4 = 0$.

3

1

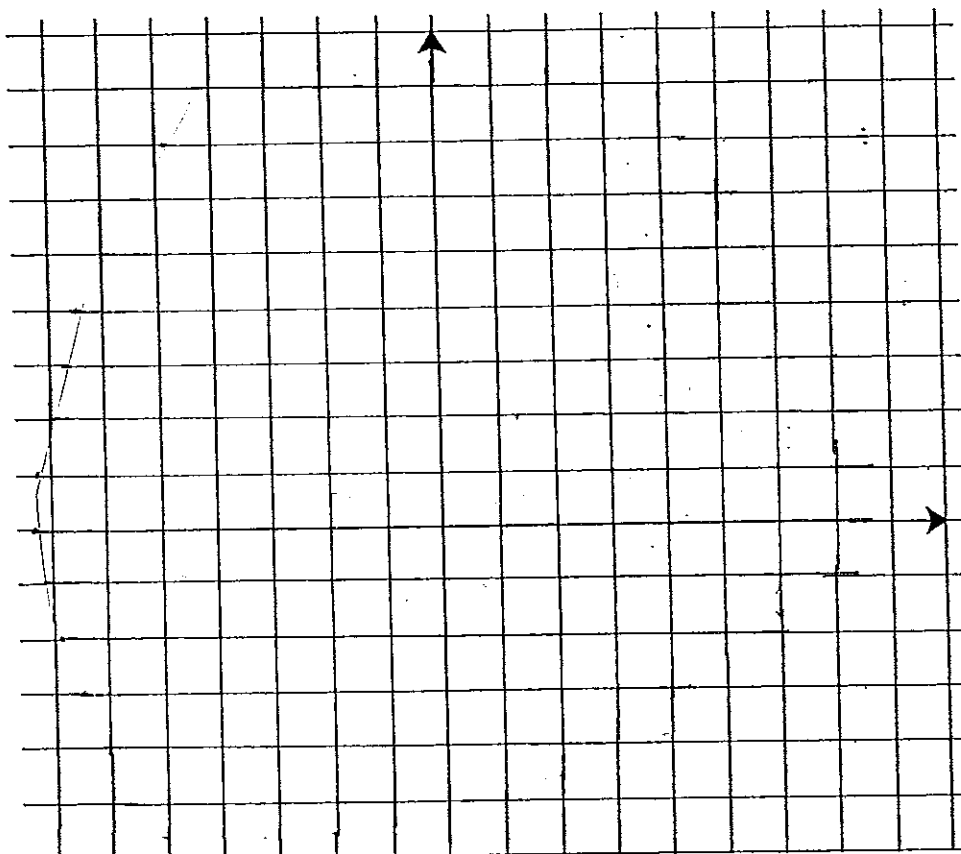
a) Complete the table of values for each of the following

(i) $y = x^2 - 2$

x	-3	-2	-1	0	1	2	3
y							

(ii) $y = 2x + 1$

x	-1	0	1
y			

b) Sketch the graphs of $y = x^2 - 2$ and $y = 2x + 1$ on the set of axes provided below.c) Use your graph to solve the simultaneous equations $y = x^2 - 2$ and $y = 2x + 1$.

2

1

3

2

2

Solve each of the pairs of simultaneous equations.

a) $y = x^2 + 2x - 1$ and $y = 5x - 3$

4

b) $y = 2x^2 + 3x + 2$ and $y = 5 - 2x$

4