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.

Assessment 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				

1

		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

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

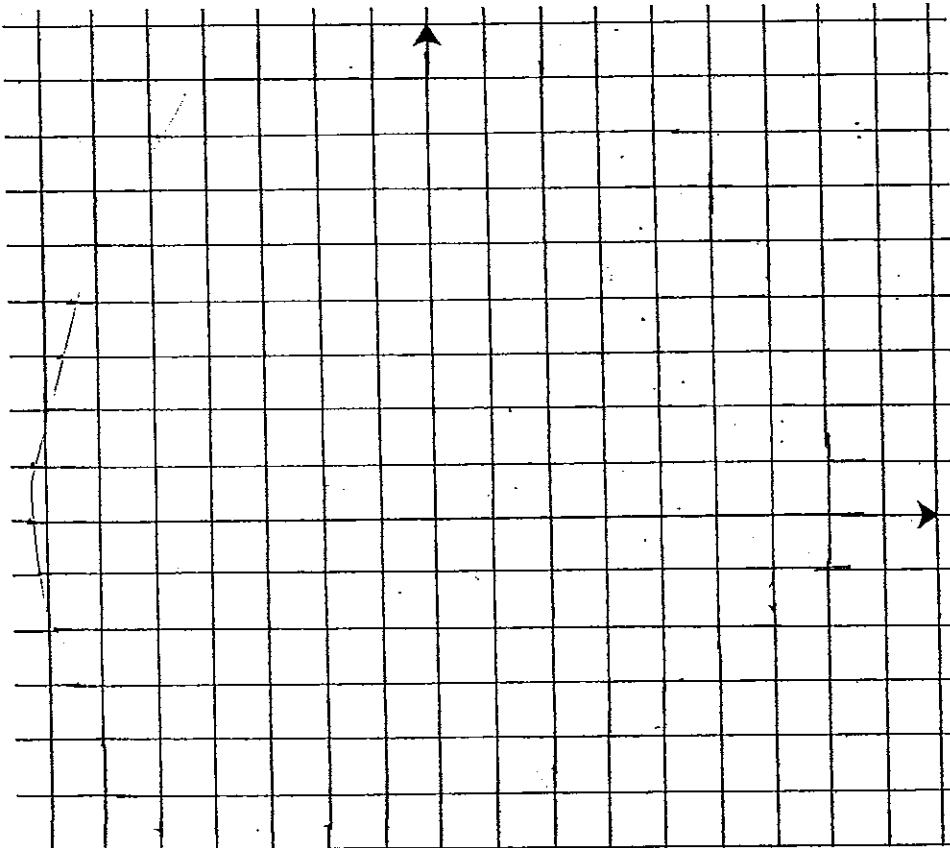| 6 | Use the substitution $x = y^2$ to factorise and solve the equation $36y^4 - 25y^2 + 4 = 0$. | 3 |

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							

2

(ii) $y = 2x + 1$

x	−1	0	1
y			

1

b) Sketch the graphs of $y = x^2 - 2$ and $y = 2x + 1$ on the set of axes provided below.

3

c) Use your graph to solve the simultaneous equations
$y = x^2 - 2$ and $y = 2x + 1$.

2

2	Solve each of the pairs of simultaneous equations.	4
	a) $y = x^2 + 2x - 1$ and $y = 5x - 3$	
	b) $y = 2x^2 + 3x + 2$ and $y = 5 - 2x$	4