



Province of the  
**EASTERN CAPE**  
EDUCATION

**NATIONAL  
SENIOR CERTIFICATE**

**GRADE 12**

**SEPTEMBER 2010**

**MATHEMATICAL LITERACY – PAPER 1  
MEMORANDUM**

**MARKS: 150**

**TIME: 3 hours**

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This memorandum consists of 13 pages.

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SYMBOL	EXPLANATION
M	Method
MA	Method with accuracy
CA	Consistent accuracy
A	Accuracy
C	Conversion
RT/RG/RM	Reading from a table/Reading from a graph/ Reading from a map
SF	Correct substitution in a formula
O	Opinion
P	Penalty, e.g. for no units, incorrect rounding off etc.
R	Rounding off
S	Simplification

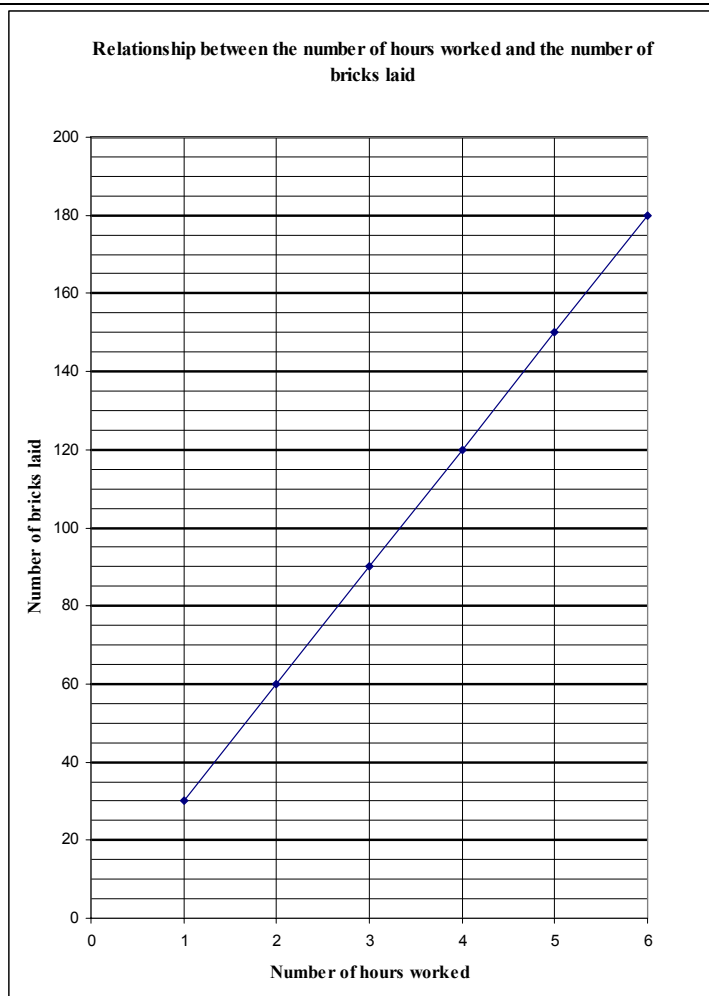
Question 1 (25 marks)			
Ques	Solution	Explanation	AS's
1.1.1	$(18)^2 + \frac{1}{2}(500 - 92)$ $\checkmark S \quad \checkmark S$ $= 324 + 204$ $= 528 \quad \checkmark CA$	$\checkmark S$ Simplification of $18^2$ $\checkmark S$ Simplification of bracket $\checkmark CA$ Answer Answer only full marks (3)	12.1.1
1.1.2	$3^3 + \sqrt{121}$ $\checkmark S \quad \checkmark S$ $= 27 + 11$ $= 38 \quad \checkmark CA$	$\checkmark S$ Simplify $3^3$ $\checkmark S$ Simplify radical $\checkmark CA$ Answer Answer only full marks (3)	12.1.1
1.2	$12 : 60$ $= 1 : 5 \quad \checkmark A$	$\checkmark A$ Correctly simplified (1)	12.1.1
1.3	$0,05$ $= \frac{5}{100} \quad \checkmark MA$ $= \frac{1}{20} \quad \checkmark A$	$\checkmark MA$ Correct fraction $\checkmark A$ Correctly Simplified Answer only full marks (2)	12.1.1
1.4	$\checkmark MA$ $2500 \text{ ml} \div 1000 \text{ ml}$ $= 2,5 \text{ l} \quad \checkmark CA$	$\checkmark MA$ Knowing to divide by 1000 $\checkmark CA$ Answer Answer only full marks (2)	12.3.2
1.5	$\frac{429}{110} = 3,9 \quad \checkmark A$	$\checkmark A$ Answer (1)	12.1.1
1.6	$\checkmark M \quad \checkmark M$ $\frac{11}{100} \times R4621 \quad \text{OR} \quad 0,11 \times R4621$ $= R508,31 \quad \checkmark A \quad \quad \quad = R508,31 \quad \checkmark A$	$\checkmark M$ Multiply by $\frac{11}{100}$ $\checkmark A$ Answer Answer only full marks (2)	12.1.1

Ques	Solution	Explanation	AS's
1.7.1	$\frac{R10,53}{300} \times 100 \quad \checkmark M$ $= R3,51 \quad \checkmark CA$	$\checkmark M$ Knowing to divide Amount by 3 $\checkmark CA$ Answer Answer only full marks (2)	12.1.1
1.7.2	$\frac{R22}{500} \times 100 \quad \checkmark M$ $= R4,40 \quad \checkmark CA$	$\checkmark M$ Knowing to divide by 5 $\checkmark CA$ Answer Answer only full marks (2)	12.1.1
1.8	$\frac{22}{110} \times 100 \% \quad \checkmark \checkmark SF$ $= 20\% \quad \checkmark CA$	$\checkmark SF$ Substitution $\checkmark CA$ Answer Answer only full marks (3)	12.1.3
1.9	$^{\circ}C = \frac{5}{9} \times (^{\circ}F - 32^{\circ})$ $\checkmark SF$ $= \frac{5}{9} \times (120^{\circ} - 32^{\circ})$ $= \frac{5}{9} \times (88^{\circ})$ $= 48,888...$ $\approx 48,89^{\circ}C \quad \checkmark CA \checkmark R$	$\checkmark SF$ Substitution $\checkmark CA$ Answer $\checkmark R$ Rounding off Answer only full marks (3)	12.3.2
1.10	$\frac{231km}{3h} \quad \checkmark M$ $= 77 km/h \quad \checkmark CA \checkmark P$	$\checkmark M$ Correct fraction $\checkmark CA$ Answer $\checkmark P$ Correct unit Answer only full marks (2)	12.2.1

Question 2 (23 Marks)			
Ques	Solution	Explanation	AS's
2.1.1	4 ✓✓RG	✓✓RG Reading from the graph (2)	12.2.3
2.1.2	20 km ✓✓RG	✓✓RG Reading from the graph (2)	12.2.3
2.1.3	120 km ✓✓RG	✓✓RG Reading from the graph (2)	12.2.3
2.1.4	12:30 pm ✓✓RG	✓✓RG Reading from the graph (2)	12.2.3
2.1.5	13:00 <b>OR</b> 1 o'clock <b>OR</b> 1 pm ✓✓RG	✓✓RG Reading from the graph (2)	12.2.3
2.1.6	Average Speed = $\frac{\text{distance}}{\text{time}}$  $= \frac{120\text{km}}{1,5\text{h}}$ ✓SF  $= 80 \text{ km/h}$ ✓CA✓P	✓SF Substitution into formula ✓CA Answer ✓P Correct unit  Answer only full marks but penalize for units (3)	12.2.1
2.1.7	$4 \times 0,5\text{h}$ ✓M  $= 2 \text{ h}$ ✓A	✓M Knowing to multiply ✓A Answer  Answer only full marks (2)	12.1.1
2.2.1	Number of grams of fruit mix  $= \frac{50}{2} \times 300\text{g}$ ✓MA  $= 7\,500\text{g}$ ✓CA	✓MA Correct factor ✓CA Answer  Answer only full marks (2)	12.1.1
2.2.2	$25 \text{ kg} \times 2,2046 \text{ pounds}$ ✓M  $= 55,115$ ✓CA  $\approx 55,12 \text{ pounds}$ ✓R	✓M Multiplication ✓CA Answer ✓R Rounding off  Answer only (correctly Rounded) full marks (3)	12.3.2
2.2.3	$3,3 \div 0,22$ ✓M  $= 15 \text{ litres}$ ✓CA✓P	✓M Division ✓CA Answer ✓P Unit Answer only full marks (3)	12.3.2

Question 3 (16 marks)			
Ques	Solution	Explanation	AS's
3.1.1	Transfer fees = Transfer Tax + Admin Cost + Transfer Costs + VAT  $= R14\ 600 + R340 + R5\ 100 + R714$ $= R20\ 754$	✓✓RT All 4 values correct from table. ✓CA Answer  Answer only full marks (3)	12.2.1
3.1.2	Bond fees = Stamp Duty + Admin Costs + Bond Costs + VAT  $= R780 + R340 + R3\ 400 + R476$ $= R4\ 996$	✓✓RT All 4 values correct from table. ✓CA Answer  Answer only full marks (3)	12.2.1
3.2	$\frac{R25750}{R390000 + R25750} \times 100$ $= 6,193\ldots$ $\approx 6,19\%$	✓SF Substitution ✓CA Answer ✓R Rounding off  Answer only full marks (3)	12.2.1
3.3	Valuation costs  $= R390\ 000 \times \frac{0,2}{100}$ $= R780$	✓M/A Multiply by 0,2% ✓A Answer  Answer only full marks (2)	12.1.1

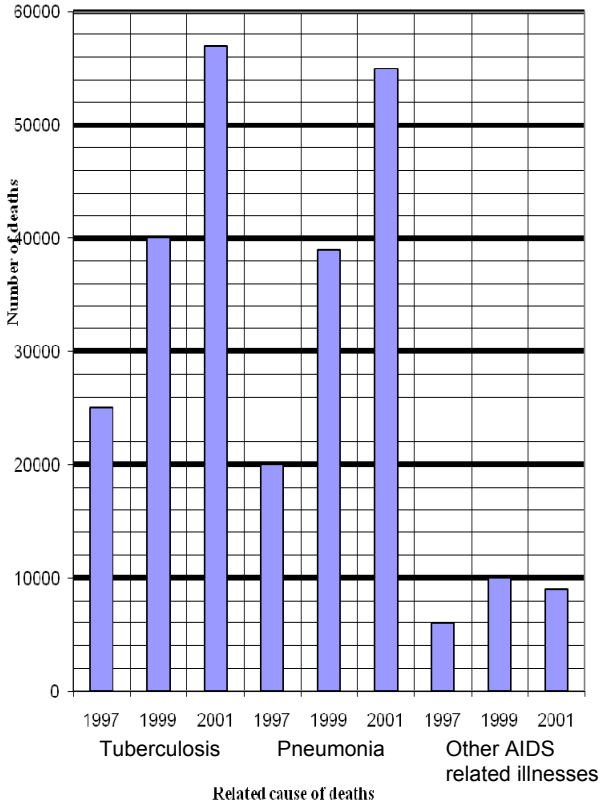
3.4



✓✓✓ Plotting any three points correctly  
✓ Shape  
✓ Points joined

(5)

12.2.2

Question 4 (24 marks)																			
Ques	Solution	Explanation	AS's																
4.1.1a)	400 000 ✓✓RG	✓✓RG Reading from graph (2)	12.4.4																
4.1.1b)	500 000 ✓✓RG	✓✓RG Reading from graph (2)	12.4.4																
4.1.2	300 000 – 100 000 ✓M = 200 000 deaths ✓A	✓M Correct values and subtraction ✓A Answer Answer only full marks (2)	12.1.1																
4.1.3	2006 ✓✓RG	✓✓RG Reading from graph (2)	12.4.4																
4.2.1a)	2001 ✓✓RT	✓✓RT Reading from table (2)	12.4.4																
4.2.1b)	Tuberculosis ✓✓RT	✓✓RT Reading from table (2)	12.4.4																
4.2.2	 <p>Number of deaths in South Africa due to Tuberculosis, Pneumonia and AIDS related illnesses</p> <table border="1"> <caption>Data from Bar Chart</caption> <thead> <tr> <th>Related cause of deaths</th> <th>1997</th> <th>1999</th> <th>2001</th> </tr> </thead> <tbody> <tr> <td>Tuberculosis</td> <td>25,000</td> <td>40,000</td> <td>57,000</td> </tr> <tr> <td>Pneumonia</td> <td>20,000</td> <td>39,000</td> <td>55,000</td> </tr> <tr> <td>Other AIDS related illnesses</td> <td>6,000</td> <td>10,000</td> <td>9,000</td> </tr> </tbody> </table>	Related cause of deaths	1997	1999	2001	Tuberculosis	25,000	40,000	57,000	Pneumonia	20,000	39,000	55,000	Other AIDS related illnesses	6,000	10,000	9,000	✓ Mark for each bar = 6 marks  (6)	12.4.2
Related cause of deaths	1997	1999	2001																
Tuberculosis	25,000	40,000	57,000																
Pneumonia	20,000	39,000	55,000																
Other AIDS related illnesses	6,000	10,000	9,000																



4.2.3a)	$\text{Median} = \frac{39000 + 46000}{2} \quad \checkmark \text{RT} \checkmark \text{M}$ $= \frac{85000}{2}$ $= 42\,500 \text{ deaths} \quad \checkmark \text{A}$	$\checkmark \text{RT}$ Correct values $\checkmark \text{M}$ Correct method for median $\checkmark \text{A}$ Answer Answer only full marks (3)	12.4.3
4.2.3b)	$\text{Mean}$ $= \frac{20000 + 27000 + 39000 + 46000 + 55000 + 68000}{6}$ $= \frac{255000}{6} \quad \checkmark \checkmark \text{M}$ $= 42\,500 \text{ deaths} \quad \checkmark \text{CA}$	$\checkmark \checkmark \text{M}$ Sum of values and division by 6 $\checkmark \text{CA}$ Answer Answer only full marks (3)	12.4.3

Question 5 (18 marks)			
Ques	Solution	Explanation	AS's
5.1	$r = 210 \text{ m} - 140 \text{ m}$ ✓RG✓M $= 70 \text{ m}$ ✓CA	✓RG Correct distances from graph ✓M Subtraction ✓CA Answer  Answer only full marks (3)	12.3.1
5.2	$CD = 140 \text{ m} + 20 \text{ m} + 140 \text{ m}$ ✓M $= 300 \text{ m}$ ✓CA	✓M Adding three values on map ✓CA Answer  Answer only full marks (2)	12.3.1
5.3	Perimeter of semicircle = $\pi \times \text{radius}$  $= (3,14)(70)$ ✓MA✓SF  $= 219,80 \text{ m}$ ✓CA	✓MA Correct value r ✓SF Substitution ✓CA Answer  If $\pi$ on calculator used Answer = 219,91 m  Answer only full marks (3)	12.3.1
5.4	Distance walked  $= 960 \text{ m} \times 3$ ✓MA  $= 2\,880 \text{ m}$ ✓CA	✓MA Knowing to multiply by 3 ✓CA Answer  Answer only full marks (2)	12.3.1
5.5	Average speed = $\frac{\text{Distance walked (in km)}}{\text{Time walked (in h)}}$  $= \frac{2,879 \text{ km}}{1,25 \text{ h}}$ ✓SF  $= 2,3032 \text{ km/h}$ ✓CA  $\approx 2,3 \text{ km/h}$ ✓R✓P	✓SF Substitution ✓C 1,25 h correct conversion ✓CA Answer ✓R Rounding off ✓P Correct unit  Answer only full marks. Penalize for incorrect unit (5)	12.2.1
5.6	Volume = Length $\times$ Breadth $\times$ Height  $= 11 \times 9 \times 22$ ✓SF  $= 2\,178 \text{ cm}^3$ ✓CA✓P	✓SF Substitute into formula ✓CA Answer ✓P Correct unit  Answer only with correct unit full marks (3)	12.3.1

<b>Question 6 (25 marks)</b>			
<b>Ques</b>	<b>Solution</b>	<b>Explanation</b>	<b>AS's</b>
6.1.1	$R8\,000\,000 \div R160\,000 \quad \checkmark M$ $= 50 \text{ two-bedroom houses} \quad \checkmark A$	$\checkmark M$ Divide by 160 000 $\checkmark A$ Answer Answer only full marks (2)	12.1.1
6.1.2	$R8\,000\,000 \div R240\,000 \quad \checkmark M$ $= 33,33... \text{ three-bedrooom houses} \quad \checkmark A$ $= 33 \text{ three-bedroom houses} \quad \checkmark R$	$\checkmark M$ Divide by 240 000 $\checkmark A$ Answer $\checkmark R$ Rounding Answer only full marks (3)	12.1.1
6.1.3	$(22 \times R160\,000) + (18 \times R240\,000) \quad \checkmark \checkmark M$ $= R3\,520\,000 + R4\,320\,000 \quad \checkmark S$ $= R7\,840\,000 \quad \checkmark CA$	$\checkmark M$ Multiply by 22 $\checkmark M$ Multiply by 18 $\checkmark S$ Addition $\checkmark CA$ Answer (4)	12.1.1
6.1.4	$R6\,480\,000 \div R240\,000 \quad \checkmark M$ $= 27 \text{ houses} \quad \checkmark A$	$\checkmark M$ Division $\checkmark A$ Answer Answer only full marks (2)	12.1.1
6.2.1	A2 <b>OR</b> 2A $\checkmark \checkmark RM$	$\checkmark \checkmark RM$ Reading from map (2)	12.3.4
6.2.2	Grobler Street $\checkmark \checkmark RM$	$\checkmark \checkmark RM$ Reading from map (2)	12.3.4
6.2.3a)	West <b>OR</b> Westerly $\checkmark \checkmark RM$ <b>OR</b> EAST to WEST	$\checkmark \checkmark RM$ Reading from map (2)	12.3.4
6.2.3b)	North <b>OR</b> Northerly $\checkmark \checkmark RM$	$\checkmark \checkmark RM$ Reading from map (2)	12.3.4
6.2.4	$55 \times 22\,500 \text{ mm} \quad \checkmark MA$ $= 1\,237\,500 \text{ mm} \quad \checkmark A$ $\frac{1237500}{1000000} km \quad \checkmark C$ $= 1,237500 \text{ km} \approx 1,24 \text{ km} \quad \checkmark A$	$\checkmark MA$ Knowing to Multiply $\checkmark A$ Answer $\checkmark C$ Conversion $\checkmark A$ Answer correctly rounded Answer only full marks (4)	12.3.2 12.3.3
6.2.5	$200\,000 \div 385,99 \quad \checkmark M$ $= R518,15 \quad \checkmark CA$	$\checkmark M$ Knowing to divide $\checkmark A$ Answer Answer only full marks (2)	12.1.3

Question 7 (18 marks)			
Ques	Solution	Explanation	AS's
7.1.1	$P(\text{soccer cap}) = \frac{2}{5}$ ✓ OR 40% OR 0,4 ✓ A	✓A Numerator ✓A denominator (2)	12.4.5
7.1.2a	$\frac{85}{365}$ ✓M  $= \frac{17}{73}$ ✓A	✓M Correct fraction ✓A Answer  (2)	12.1.1
7.1.2b	$365 - 85$  $= 280$ Bafana-Bafana caps ✓MA	✓MA Subtraction and answer  Answer only full marks (1)	12..1.1
7.2.1a	$A = 43 + 31 + 28 + 25$  $= 127$ ✓A	✓A Answer  (1)	12.4.4
7.2.1b	$B = 55 - 43$ ✓M OR $B = 73 - (4 + 25 + 32)$  $= 12$ ✓A $= 73 - 61$  $= 12$	✓M Subtraction ✓A Answer  Answer only full marks (2)	12.4.4
7.2.2	$\frac{73}{200} \times 100\%$ ✓M  $= 36,5\%$ ✓A	✓M Knowing to multiply with 100 ✓A Answer with %  Answer only full marks (2)	12.1.1
7.2.3	$\frac{31}{200}$ ✓ RT ✓ RT	✓C Converting decimal into fraction ✓CA Answer  Answer only full marks (2)	12.4.5
7.3.1	$R72 \div 12$ ✓M  $= R6$ cost of one vuvuzela ✓A	✓M Divide by 12 ✓A Answer  Answer only full marks (2)	12.1.3

Ques	Solution	Explanation	AS's
7.3.2	$R15 - R6$ $= R9$ profit per vuvuzela ✓M $12 \times R9$ $= R108$ profit per dozen ✓CA	✓M Profit on one ✓CA profit for 12 Answer only full marks (2)	12.1.3
7.3.3	$1\,440 \times R6$ ✓M $= R8\,640$ ✓A	✓M Multiply by R6 ✓CA Answer Answer only full marks (2)	12.1.3