



Province of the
EASTERN CAPE
EDUCATION

NATIONAL SENIOR CERTIFICATE

GRADE 11

NOVEMBER 2013

MATHEMATICAL LITERACY P1 MEMORANDUM

MARKS: 100

SYMBOL	EXPLANATION
A	Accuracy
CA	Consistent Accuracy
C	Conversion
J	Justification (Reason/Opinion)
M	Method
MA	Method with accuracy
P	Penalty for no units, incorrect rounding off, etc.
R	Rounding off
RT/RG	Reading from table/graph
S	Simplification
SF	Correct substitution in a formula
O	Own opinion

This memorandum consists of 7 pages.

QUESTION 1 (30 MARKS)			
Question	Solution	Explanation	Level + Topic
1.1	Fixed Expenses $= 6000 + 1500 + 465 + 250 + 1\,750 + 500$ $\sqrt{M}\sqrt{SF}$ $= R\,10\,465,00 \sqrt{A}$	1M Method used 1SF Correct values substituted 1A Correct answer (3)	Finance L1
1.2	Cost of ingredients $= 15,50 + 0,25 + 11,50 + 9,50 + 12,75 + 8,00 + 12,50$ $\sqrt{M}\sqrt{SF}$ $= R70,00 \sqrt{A}$	1M Method used 1SF Correct values substituted 1A Correct answer (3)	Finance L1
1.3	Cost for Ingredients for one Giant Muffin $= 70,00 \div 50 \sqrt{SF}$ $= R1,40 \sqrt{MA}$	1SF Correct substitution 1MA Method and accuracy (2)	Finance L1
1.4	Cost of Electricity for one Muffin $= (6 \times 1,09) \div 50 \sqrt{SF}$ $= 0,1308$ $= R0,13 \sqrt{MA}$	1SF Correct substitution 1MA Method and accuracy (2)	Finance L2
1.5	Cost of one Giant Muffin $= 1,40 + 0,13 \sqrt{SF}$ $= R1,53 \sqrt{MA}$	1SF Correct substitution 1MA Method and accuracy (2)	Finance L1
1.6.1	Profit = $5,00 - 1,53 \sqrt{SF}\sqrt{SF}$ $= R3,47 \sqrt{MA}$	2SF Correct substitutions 1MA Method and accuracy (3)	Finance L1
1.6.2	$\% \text{ Profit} = \frac{3,47}{1,53} \times 100$ \sqrt{SF} $= 226,7973856 \sqrt{A}$ $= 226,80\% \sqrt{C}$	1SF Correct values used 1A Accuracy 1C Conversion to 2 decimal places (3)	Finance L1

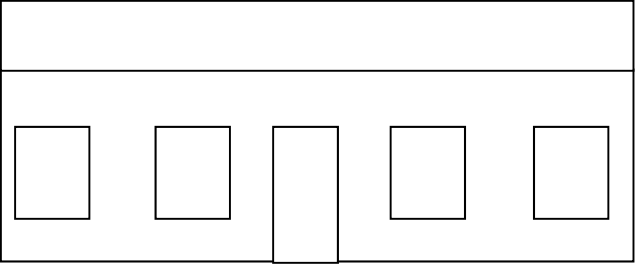
Question	Solution	Explanation	Level + Topic
1.7	$\begin{aligned} \text{Number of muffins} &= \frac{10\,465,00}{3,47} \sqrt{\text{SF}} \\ &= 3015,850144 \sqrt{\text{A}} \\ &= 3016 \text{ Muffins} \sqrt{\text{C}} \end{aligned}$	1SF Correct values used 1A Accuracy 1C Conversion up to whole muffin (3)	Finance L2
1.8.1	$\begin{aligned} A &= 12\,500 + 12\,500 \times 12,5\% \times 5 \sqrt{\text{SF}} \\ &= 12\,500 + 7\,812,50 \sqrt{\text{CA}} \\ &= R20\,312,50 \sqrt{\text{A}} \end{aligned}$	1SF Correct substitution 1CA Accurate calculation 1A Correct answer (3)	Finance L2
1.8.2	$\begin{aligned} \text{Monthly Payment} &= 20\,312,50 \div 60 \sqrt{\text{M}} \sqrt{\text{C}} \\ &= R\,338,5416667 \\ &= R\,338,54 \sqrt{\text{C}} \end{aligned}$	1M Correct method used (\div) 1C using 60 1C Correct answer to 2 decimal places (3)	Finance L2
1.8.3	$\begin{aligned} \text{Extra muffins needed} &= 338,54 \div 3,47 \sqrt{\text{M}} \sqrt{\text{SF}} \\ &= 97,56195965 \\ &= 98 \text{ muffins more} \sqrt{\text{C}} \end{aligned}$	1M Correct method used 1SF Correct values used 1C Correct answer round up (3)	Finance L2
			[30]

QUESTION 2 (22 MARKS)			
Question	Solution	Explanation	Level + Topic
2.1.1	$\begin{aligned} \text{Surface Area} &= 2 \times 15 \times 1,5 + 2 \times 8 \times 1,5 \sqrt{\text{SF}} \\ &= 45 + 24 \sqrt{\text{MA}} \\ &= 69 \text{ m}^2 \sqrt{\text{CA}} \end{aligned}$	1SF Correct values substituted 1MA Correct method and accuracy 1CA Correct answer (3)	Measure L1
2.1.2	$\begin{aligned} 20 \text{ cm} \div 100 &= 0,2 \text{ m} \sqrt{\text{C}} \\ \text{Tile area} &= 0,2 \times 0,2 \\ &= 0,04 \text{ m}^2 \text{ each} \sqrt{\text{CA}} \\ \\ \text{No. of Tiles needed} &= 69 \div 0,04 \sqrt{\text{M}} \\ &= 1725 \text{ tiles} \sqrt{\text{CA}} \end{aligned}$	1C Correct conversion 1CA Accurate answer 1M Correct method 1CA Correct answer (4)	Measure L2
2.2	$\begin{aligned} \text{Volume} &= 15 \times 8 \times 1,5 \sqrt{\text{SF}} \\ &= 180 \text{ m}^3 \sqrt{\text{A}} \\ &= 180 \text{ kilolitres} \sqrt{\text{C}} \end{aligned}$	1Sf Correct substitution 1A Accurate answer 1C Correct conversion (3)	Measure L2
2.3	$\begin{aligned} \text{Cost} &= 180 \times 5,55 \sqrt{\text{SF}} \sqrt{\text{SF}} \\ &= \text{R } 999,00 \sqrt{\text{CA}} \end{aligned}$	2SF Correct values used 1CA Consistent accuracy (3)	Finance L1
2.4	$\begin{aligned} \text{Water evaporated} &= 180 \times 1,5\% \sqrt{\text{SF}} \sqrt{\text{M}} \\ &= 2,7 \text{ kilolitres} \sqrt{\text{CA}} \end{aligned}$	1SF Correct values used 1M Correct method (x 1,5%) 1CA Consistent accuracy (3)	Measure L2

Question	Solution	Explanation	Level + Topic
2.5.1	Width of paving = $\frac{17 - 15}{2}$ or $\frac{10 - 8}{2}$ \sqrt{M} = 1m \sqrt{CA}	1M Correct method used 1CA Correct answer (2)	Measure L1
2.5.2	50 \div 100 = 0,5 \therefore 2 pavers per metre \sqrt{C} No. pavers for length = 17 x 2 x 2 = 68 pavers \sqrt{M} No. pavers for width = 8 x 2 x 2 = 32 pavers \sqrt{M} Total No. of Pavers = 68 + 32 = 100 pavers \sqrt{CA} Width and length with 2 m short can be swapped around	1C Correct concept 1M correct method 1M Correct method 1CA Correct Answer (4)	Measure L3 L2
			[22]

QUESTION 3 (20 MARKS)

Question	Solution	Explanation	Level + Topic
3.1.1	North \sqrt{A}	1A Correct answer (1)	Maps etc. L1
3.1.2	Go through the passage from the front door onto the veranda. Turn right and walk on the veranda until you get to a classroom Turn left along the veranda and enter the third door on your right. $\sqrt{\sqrt{CI}}$	2 CI correct directions given Give 1 mark for every 2 correct instructions (2)	Maps etc. L1
3.1.3	Double door \sqrt{A} Reason = 2 arcs and a line – allows more children to go through in one go \sqrt{J}	1A correct answer 1J Correct justification (2)	Maps etc. L1
3.2.1	Length = 3 cm \sqrt{A} Breadth = 2,2 cm \sqrt{A}	1A Correct answer 1A correct answer (2)	Maps etc. L1

Question	Solution	Explanation	Level + Topic
3.2.2	<p>Real life length = $3 \times 400 \sqrt{M}$ $= 1\,200 \text{ cm} / 12 \text{ m} \sqrt{CA}$</p> <p>Real life breadth = $2,2 \times 400 \sqrt{M}$ $= 880 \text{ cm} / 8,8 \text{ m} \sqrt{CA}$</p>	<p>1M correct method used 1CA Consistent accuracy 1M correct method used 1CA Consistent accuracy (4)</p>	<p>Maps etc. L1</p>
3.3	 <p>1 mark for correct 1 door 1 mark for correct number of windows (can vary in size) 1 mark for roof (roof may have angled sides)</p>	<p>As indicated with drawing (3)</p>	<p>Maps etc. L1</p>
3.4	<p>No, they are not all the same size. \sqrt{A}</p> <p>Not all classes need the same amount of space. Some classes less learners etc. Accept any reasonable answer here. \sqrt{J}</p>	<p>1A Correct answer 1J Justification/Opinion (2)</p>	<p>Maps etc. L1</p>
3.5.1	<p>Annual School fees = $10 \times 950 \sqrt{M}$ $= R\,9\,500 \sqrt{CA}$</p>	<p>1M Correct method 1CA Correct answer (2)</p>	<p>Finance L1</p>
3.5.2	<p>Discount = $9\,500 \times 15\% \sqrt{M}$ $= R1\,425 \sqrt{CA}$</p> <p>Accept x by 0,15 instead of 15%</p>	<p>1M Correct method 1CA Correct answer (2)</p>	<p>Finance L2</p>
			[20]

QUESTION 4 (28 MARKS)			
Question	Solution	Explanation	Level + Topic
4.1.1	16 \sqrt{RG}	1RG Correct reading from graph (1)	Data L1
4.1.2	5 \sqrt{RG}	1RG Correct reading from graph (1)	Data L1
4.1.3	4 Overs $\sqrt{RG}\sqrt{RG}$	2RG Correct adding and reading from graph (2)	Data etc. L1
4.1.4	6 Overs $\sqrt{RG}\sqrt{RG}$	2RG Correct adding and reading from graph (2)	Data etc. L1
4.1.5	$P(9 \text{ runs SA}) = \frac{4}{20} \sqrt{SF} = 20\% \sqrt{C}$ <p style="text-align: center;">or</p> $\frac{1}{5}$	1SF Correct values Substituted 1C Correct conversion (2)	Probability L1
4.1.6	Total number of runs SA $= 5 + 10 + 15 + 9 + 0 + 6 + 15 + 12 + 8 + 9 + 4 + 11 + 16 + 1 + 9 + 24 + 12 + 18 + 13 + 9$ \sqrt{MA} $= 206$ runs \sqrt{CA}	1MA Correct method and accuracy 1CA Correct answer (2)	Data etc. L1
4.1.7	Average $= 194 \div 20$ \sqrt{M} $= 10,3$ runs per over \sqrt{CA}	1M Correct method 1CA Consistent accuracy (2)	Data etc. L2
4.1.8	Total number of runs New Zealand $= 6 + 12 + 12 + 7 + 2 + 8 + 12 + 10 + 10 + 12 + 2 + 5 + 12 + 2 + 7 + 18 + 6 + 12 + 15 + 2$ \sqrt{MA} $= 172$ runs \sqrt{CA} SA won because they made more runs \sqrt{J}	1MA Correct method and accuracy 1CA Correct answer 1J Correct justification (3)	Data etc. L1

Question	Solution	Explanation	Level + Topic
4.2.1	Social Networking \sqrt{RG}	1Rg Correct reading from graph (1)	Data etc. L1
4.2.2	% usage = $\frac{72}{400} \times 100 \sqrt{\sqrt{SF}}$ = 18% \sqrt{CA}	2SF Correct values substituted 1CA Correct answer (3)	Data etc. L1
4.2.3	$400 \times 8\% \sqrt{M}$ = 32 learners \sqrt{A} $\therefore 8\% = \text{SMSs} \sqrt{CA}$	1M Correct method used 1A Accuracy 1CA Correct answer (3)	Data etc. L3
4.2.4	No. Degrees Social Networking = $\frac{80}{400} \times 360 \sqrt{M} \sqrt{SF}$ = $72^\circ \sqrt{CA}$	1M Correct method used 1SF correct values substituted 1CA Correct answer (3)	Data etc. L2
4.2.5	$P(\text{ games}) = \frac{45}{400} \sqrt{SF} = 11,25\% \sqrt{CA}$	1SF Correct numerator 1SF correct denominator 1CA Correct percentage (3)	Probability L1
			[28]

TOTAL: 100