**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

QUESTION 1 (30 MARKS)

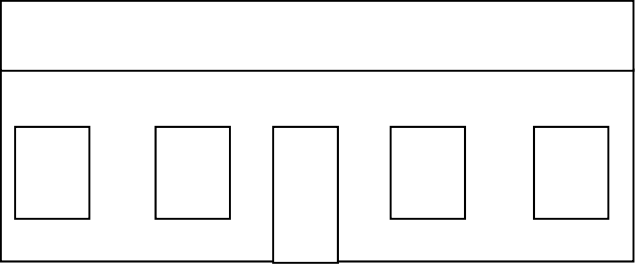| Question	Solution	Explanation	Level + Topic

1.1	Fixed Expenses
	  = 6000 + 1500 + 465 + 250 + 1 750 + 500 √M√SF
	  = R 10 465, 00 √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
	    √M√SF
	  = R70,00 √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 ÷ 50 √SF
	  = R1,40 √MA
		1SF Correct substitution
		1MA Method and accuracy (2)
			Finance
			
			L1

1.4	Cost of Electricity for one Muffin
	  = (6 x 1,09) ÷50√SF
	  = 0,1308
	  = R0,13 √MA
		1SF Correct substitution
		1MA Method and accuracy (2)
			Finance
			
			L2

1.5	Cost of one Giant Muffin
	  = 1,40 + 0,13 √SF
	  = R1,53 √MA
		1SF Correct substitution
		1MA Method and accuracy (2)
			Finance
			
			L1

1.6.1	Profit = 5,00 – 1,53 √SF√SF = R3,47 √MA	2SF Correct substitutions 1MA Method and accuracy (3)	Finance L1

1.6.2	% Profit = $\frac{3,47}{1,53}$ x 100
	        √SF
	    = 226,7973856 √A
	    = 226,80% √C
		1SF Correct values used
		1A Accuracy
		1C Conversion to 2 decimal places (3)
			Finance
			
			L1

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Question	Solution	Explanation	Level + Topic
1.7	Number of muffins = $\frac{10\,465,00}{3,47}$ √SF = 3015,850144 √A = 3016 Muffins √C	1SF Correct values used 1A Accuracy 1C Conversion up to whole muffin (3)	Finance L2
1.8.1	A = 12 500 + 12 500 x 12,5% x 5 √SF = 12 500 + 7 812,50 √CA = R20 312,50 √A	1SF Correct substitution 1CA Accurate calculation 1A Correct answer (3)	Finance L2
1.8.2	Monthly Payment = 20 312, 50 ÷ 60 √M √C = R 338,5416667 = R 338,54 √C	1M Correct method used (÷) 1C using 60 1C Correct answer to 2 decimal places (3)	Finance L2
1.8.3	Extra muffins needed = 338, 54 ÷ 3,47 √M√SF = 97,56195965 = 98 muffins more √C	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	Surface Area = 2 x 15 x 1,5 + 2 x 8 x 1,5 √SF
	          = 45 + 24 √MA
	          = 69 m^2 √CA
		1SF Correct values substituted
		1MA Correct method and accuracy
		1CA Correct answer (3)
			Measure
			
			L1

2.1.2	20 cm ÷ 100 = 0,2 m √C
	Tile area = 0,2 x 0,2
	          = 0,04 m^2 each √CA
	
	No. of Tiles needed = 69 ÷ 0,04 √M
	          = 1725 tiles √CA
		1C Correct conversion
		1CA Accurate answer
		1M Correct method
		1CA Correct answer (4)
			Measure
			L2

2.2	Volume = 15 x 8 x 1,5 √SF
	          = 180 m^3 √A
	          = 180 kilolitres √C
		1Sf Correct substitution
		1A Accurate answer
		1C Correct conversion (3)
			Measure
			
			L2

2.3	Cost = 180 x 5, 55 √SF √SF = R 999,00 √CA	2SF Correct values used 1CA Consistent accuracy (3)	Finance L1
2.4	Water evaporated = 180 x 1,5% √SF √M = 2,7 kilolitres √CA	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 $\frac{10-8}{2}$ √M = 1m √CA	1M Correct method used 1CA Correct answer (2)	Measure L1

2.5.2	50 ÷ 100 = 0,5 ∴ 2 pavers per metre √C
	
	 No. pavers for length = 17 x 2 x 2
	               = 68 pavers √M
	 No. pavers for width = 8 x 2 x 2
	               = 32 pavers √M
	 Total No. of Pavers = 68 + 32
	               = 100 pavers √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 √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. √√CI	2 CI correct directions given Give 1 mark for every 2 correct instructions (2)	Maps etc. L1
3.1.3	Double door √A Reason = 2 arcs and a line – allows more children to go through in one go √J	1A correct answer 1J Correct justification (2)	Maps etc. L1
3.2.1	Length = 3 cm √A Breadth = 2,2 cm √A	1A Correct answer 1A correct answer (2)	Maps etc. L1

Question	Solution	Explanation	Level + Topic

3.2.2	Real life length = 3 x 400 √M
	               = 1 200 cm / 12 m √CA
	
	Real life breadth = 2,2 x 400 √M
	
	               = 880 cm / 8,8 m √CA
		1M correct method used
		1CA Consistent accuracy
		1M correct method used
		1CA Consistent accuracy (4)
			Maps etc.
			
			L1

3.3	 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) (3)	As indicated with drawing .	Maps etc. L1
3.4	No, they are not all the same size. √A Not all classes need the same amount of space. Some classes less learners etc. Accept any reasonable answer here. √J	1A Correct answer 1J Justification/ Opinion (2)	Maps etc. L1
3.5.1	Annual School fees = 10 x 950 √M = R 9 500 √CA	1M Correct method 1CA Correct answer (2)	Finance L1
3.5.2	Discount = 9 500 x 15% √M = R1 425 √CA Accept x by 0,15 instead of 15%	1M Correct method 1CA Correct answer (2)	Finance L2
			[20]

QUESTION 4 (28 MARKS)

Question	Solution	Explanation	Level + Topic
4.1.1	16 √RG	1RG Correct reading from graph (1)	Data L1
4.1.2	5 √RG	1RG Correct reading from graph (1)	Data L1
4.1.3	4 Overs √RG√RG	2RG Correct adding and reading from graph (2)	Data etc. L1
4.1.4	6 Overs √RG√RG	2RG Correct adding and reading from graph (2)	Data etc. L1
4.1.5	P(9 runs SA) = $\dfrac{4}{20}$ √SF = 20%√C or $\dfrac{1}{5}$	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 √MA = 206 runs √CA	1MA Correct method and accuracy 1CA Correct answer (2)	Data etc. L1
4.1.7	Average = 194 ÷ 20 √M = 10,3 runs per over √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 √MA = 172 runs √CA SA won because they made more runs √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 √RG	1Rg Correct reading from graph (1)	Data etc. L1
4.2.2	% usage = $\dfrac{72}{400}$ x 100 √√SF = 18% √CA	2SF Correct values substituted 1CA Correct answer (3)	Data etc. L1
4.2.3	400 x 8% √M = 32 learners √A ∴ 8% = SMSs √CA	1M Correct method used 1A Accuracy 1CA Correct answer (3)	Data etc. L3
4.2.4	No. Degrees Social Networking = $\dfrac{80}{400}$ x 360 √M√SF = 72° √CA	1M Correct method used 1SF correct values substituted 1CA Correct answer (3)	Data etc. L2
4.2.5	P(games) = $\dfrac{45}{400}$ √SF = 11,25 % √CA √SF	1SF Correct numerator 1SF correct denominator 1CA Correct percentage (3)	Probability L1
			[28]

TOTAL: 100