Province of the
EASTERN CAPE
EDUCATION

NATIONAL SENIOR CERTIFICATE

GRADE 12

SEPTEMBER 2012

MATHEMATICAL LITERACY P1 MEMORANDUM

MARKS: 150

Symbol	Explanation
M	Method
MA	Method with accuracy
CA	Consistent accuracy
A	Accuracy
C	Conversion
S	Simplification
RT/RG/RM	Reading from a table/Reading from a graph/Read from map
F	Choosing the correct formula
SF	Substitution in a formula
J	Justification
P	Penalty, e.g. for no units, incorrect rounding off etc.
R	Rounding Off/Reason
O	Opinion

This memorandum consists of 12 pages.

QUESTION 1					
Question		**Solution**	**Explanation**		**LO+AS**
1.1	1.1.1	$\frac{23}{30}$ x 100 = 76,6 = 77% √ MA $\frac{56}{75}$ x 100 = 74,6 = 75% √ MA $\frac{37}{40}$ x 100 = 92,5% = 93% √ MA	1MA Correct method and accuracy 1MA Correct method and accuracy 1MA Correct method and accuracy	(3)	12.1.1
	1.1.2	Average = $\frac{77+75+93}{3}$ √ M = $\frac{245}{3}$ √ M = 81,6% √ CA	1M Correct method used 1MA Method and accuracy 1Ca Consistent accuracy	(3)	12.1.1
1.2	1.2.1.	$\frac{27}{35}$ x 100 = 77,142.. = 77% √ MA $\frac{36}{40}$ x 100 = 90% √ MA $\frac{54}{60}$ x 100 = 90% √ MA	1MA Correct method and accuracy 1MA Correct method and accuracy 1MA Correct method and accuracy	(3)	12.1.1
	1.2.2	Average = $\frac{77+90+90}{3}$ √ M = $\frac{257}{3}$ √ MA = 85,6% √ CA	1M Correct method used 1MA Method and accuracy 1Ca Consistent accuracy	(3)	12.1.1
	1.2.3	John, because his average is higher than mine. √ O Accept any valid reason	1O Correct person and reasoning valid	(1)	12.1.1
1.3	1.3.1	Milk = 540 ÷ 560 √ M = 0,96428…. ≈ 0,96 pints √ CA	1M Correct method used 1CA Consistent accuracy	(2)	12.3.2
		Margarine = 30 ÷ 25 √ M = 1,2 oz √ CA	1M Correct method used 1CA Consistent accuracy	(2)	
		Flour = 85 ÷ 25 √ M = 3,4 oz √ CA	1M Correct method used 1CA Consistent accuracy	(2)	
		Sugar = 100 ÷ 25 √ M = 4 oz √ CA	1M Correct method used 1CA Consistent accuracy	(2)	

	1.3.2	°F = $\frac{9}{5} \times 220 + 32$ √ SF = 396 + 32 = 428 °F √ CA	1SF Correct values used 1CA Consistent accuracy	(2)	12.3.2
		°F = $\frac{9}{5} \times 200 + 32$ √ SF = 360 + 32 = 392 °F √ CA	1SF Correct values used 1CA Consistent accuracy	(2)	
1.4	1.4.1	Deposit = 6 573 x 10% √ SF √ M = R657, 30 √ CA	1SF Correct values used 1M correct method 1CA Consistent accuracy	(3)	12.1.1
		OR			
		Deposit = 6 573 x $\frac{10}{100}$ √ SF √ M = R657,30 √ CA	1SF Correct values used 1M correct method 1CA Consistent accuracy	(3)	
		OR			
		Deposit = 6 573 x 0,1 √ SF √ M = R657,30 √ CA	1SF Correct values used 1M correct method 1CA Consistent accuracy	(3)	
	1.4.2	A = ? P = 6 573 – 10% r = 15% n = 2 yrs = 5 915,70 √ CA = 0,15 Using A = P(1 + rt) = 5 915,70 (1+ 0,15 x 2) √ SF = 5 915,70 (1,3) √ M = R7 690,41 √ CA	1CA Correct calculation of principle value 1SF Correct values substituted 1M Correct method used 1CA Consistent accuracy	(4)	12.1.1
		OR			
		A = ? P = 6573 – 10% r = 15% n = 2 yrs = 5 915,70 √ CA = 0,15 Using A = P + (P x r x t) = 5 915,70 + (5 915,70 x 0,15 x 2) √ SF = 5915,70 + 1774,71 √M = R7 690,41 √ CA **OR** Other variations can use 15% or $\frac{15}{100}$ in place of 0,15	1CA Correct calculation of principle value 1SF Correct values substituted 1M Correct method used 1CA Consistent accuracy	(4)	

	1.4.3	Monthly Payment = 7 690,41 ÷ 24 √ SF √ M = 320,43375… = R 320,43 per month √ CA	1SF Correct values used 1M Correct method used 1CA Correct answer	(3)	12.1.1
	1.4.4	Save up, do part time work etc. accept any reasonable suggestion here. √ O	1O Any valid suggestion accepted here	(1)	12.1.1
1.5		Amount needed = 500 x 12,56 √ M = R6 280,00 √ A	1M Correct method used 1A Correct answer	(2)	12.1.1
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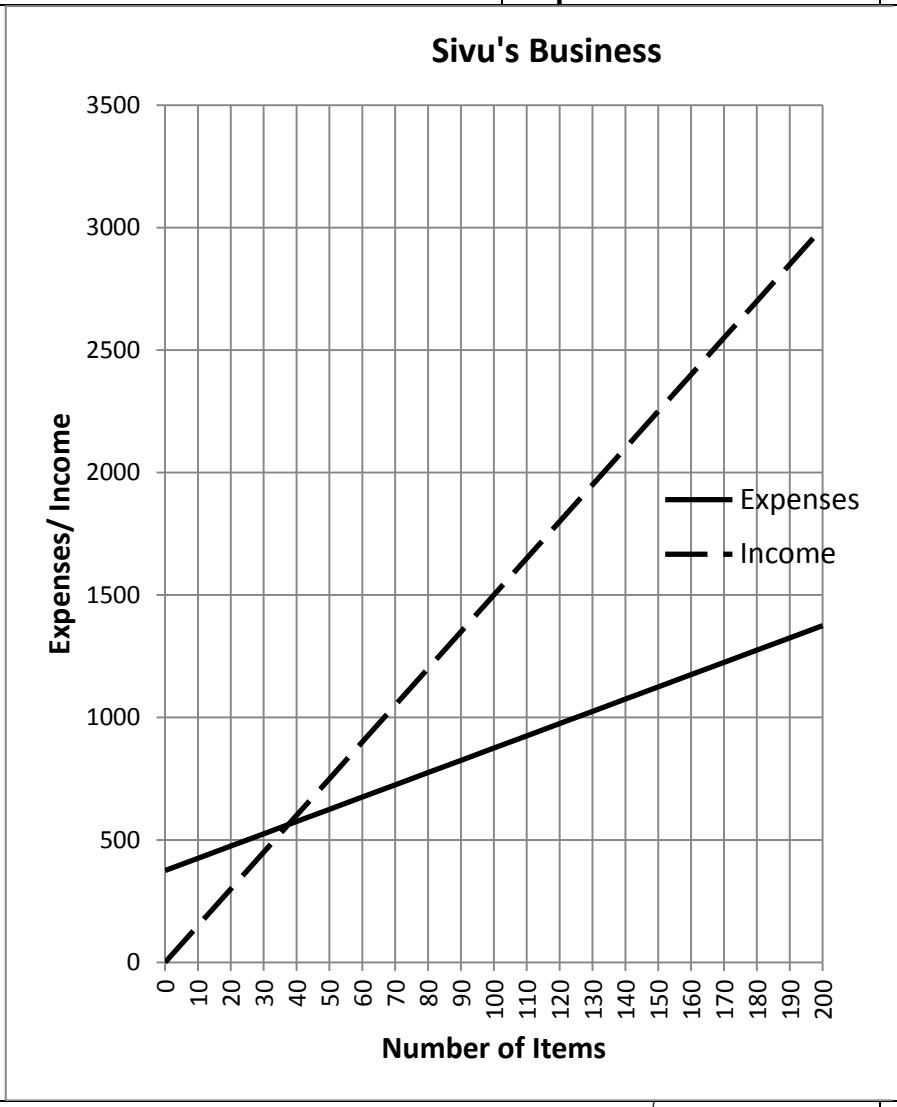
QUESTION 2

Question	Solution	Explanation		LO+AS
2.1	BEAD PARADISE: for all the beads, string and material you will ever need…. Invoice No. 23521 Date: 18/3/12		(1)	2.1.3

Quantity	Description	Unit Price				
6 kg	Glass beads	R56,00/kg	6 x 56	R336,00 √ CA		
100	Clay Beads	R1,80 ea.	**100 x 1,80**	**R180,00**		
150	Wooden Beads	R1,85 ea.	150 x 1,85	R277,50 √ CA		
175	Brass Beads	R2,50 ea.	175 x 2,50	R437,50 √ CA		
2 Rolls	String	R45,00/ roll	**2 x 45**	**R90,00**		
20 metres	Linen	R57,00/m	20 x 57,00	R1 140,00 √ CA		
	Odds and Ends	R48,00	**1 x 48**	**R48,00**		
		Sub-Total	336+180+277,50+437,50+90 + 1 140 + 48 √ M	R2 509 √ CA		
		14% VAT	2 509 x 14% **or** using 0,14 or $\frac{14}{100}$ for 14% √ M	R351,26 √ CA		
		Total	2509 + 351,26 √ M	R2 860,26 √ CA		
	1CA x 7 for accurate calculations **1M x 3 for correct methods used.**				(10)	

Question		Solution	Explanation		LO+AS
2.2	2.2.1				12.2.2
		Correct spacing between units on both axes √ Two points plotted correctly on each graph √√√√ Correct Y-intercept for each graph √√		(7)	
	2.2.2	38 items to be sold √ RG √ M Accept 38 – 39 items depending on graph.	1RG Correct reading from the graph 1M correctly using the graph and has indicated with lines on the graph	(2)	12.2.1
	2.2.3	Profit = 3 000 – 1 375 √ SF = R1 625 √ CA	1SF correct values used 1CA Correct answer	(2)	12.2.2
	2.2.4	1 800 income = 120 items √ RG √ M	1RG Correct reading from the graph 1M correctly using the graph and has indicated with lines on the graph	(2)	12.2.1

Question		Solution	Explanation		LO+AS
	2.2.5	180 items = R1 275 √ RG √ M Accept R1 200 – R1 350 depending on plotting on graph	1RG Correct reading from the graph 1M correctly using the graph and has indicated with lines on the graph	(2)	12.2.1
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QUESTION 3					
Question		**Solution**	**Explanation**		**LO+AS**
3.1		Eastern Cape = 9 449 = 9 000 GWh √ R	1R correct value rounded off	(1)	12.4.4
3.2	3.2.1	Gauteng √ RT	1RT correct reading from table	(1)	12.4.4
	3.2.2	28% √ RT	1RT correct reading from table	(1)	12.4.4
3.3		Northern Cape √√ RT	2RT correct reading from pie graph	(2)	12.4.4
3.4		25 983 + 9 449 + 4 724 + 10 054 + 47 243 + 25 984 + 66 140 + 35 432 + 11 811 √ M = 236 820 GWh √ CA	1M Correct method used 1CA Consistent accuracy	(2)	12.4.4
3.5		Difference = 4 7243 – 25 983 √M = 21 260 GWh √ CA	1M Correct method 1CA Consistent accuracy	(2)	12.4.4
3.6		• More industries • Richer province • More people • Mines etc. √√ R	2R accept any 2 good reasons here.	(2)	12.4.4
3.7	3.7.1	Cost = 49,5 x 60,80 + 228 x 30 √ SF = 3 009,60 +6 840 √ CA = 9 849,6 cents = R98,495 = R98,50 √ A	1SFCorrect substitution 1CA Correct method and accuracy 1A Correct answer	(3)	12.2.1
	3.7.2	Cost = 50 x 60,80 + 15,75 x 64,39 + 228 x 31 √√ SF = 3 040 + 1 014,1425 + 7 068 √ CA = 11122,1425 = R111, 22 √ A	2SF Correct substitutions 1CA Correct Method and accuracy 1A Correct answer	(4)	12.2.1
	3.7.3	Accept any reasonable answer here so long as it is connected to being environmentally friendly. √ O	1O own opinion	(1)	12.2.1
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QUESTION 4				
Question	**Solution**	**Explanation**		**LO+AS**
4.1	$x = 4$ metres √ C	1C Correct calculation	(1)	12.3.1
4.2	Perimeter = 2 x 6 + 4 + $\frac{(2 \times 3{,}14 \times 2)}{2}$ √ SF = 16 x 6,28 √ MA = 22,28 m √ CA	2SF correct substitution of values 1MA Method and accuracy 1CA Correct answer	(4)	12.3.1
4.3	Area = (4 x 6) + $\frac{3{,}14 \times 2^2}{2}$ √√ SF = 24 + 6,28 √ MA = 30,28 m^2 √ CA	2SF correct substitution of values 1MA Method and accuracy 1CA Correct answer	(4)	12.3.1
4.4	Wood, sanding and varnishing costs = 30,28 x 265 √ SF = R8 024,20 √ CA	1Sf correct substitution of values 1CA correct answer and accuracy	(2)	12.2.1
4.5	Skirting Board costs = 22,28 x 55 √ SF = R1 225,40 √ CA	1SF correct values used 1CA correct calculation and accuracy	(2)	12.2.1
4.6	Labour costs = 3 x 15 h x R65 √√ SF = R2 925 √ CA	2SF correct substitution of values required CA Correct answer and accuracy	(3)	12.2.1
4.7	Total cost = 8 024,20 + 1 225,40 + 2 925 √√√ SF = R 12 174,60 √ CA	3SF correct values used 1CA Correct answer and accuracy	(4)	12.2.1
4.8	Profit = 12 174,60 x 65% √ M = R7 913,49 √ CA	1M correct method and values 1CA correct answer and accuracy	(2)	12.1.1
	OR			
	Profit = 12 174,60 x $\frac{65}{100}$ √ M = R7 913,49 √ CA	1M correct method and values 1CA correct answer and accuracy	(2)	

Question	Solution	Explanation		LO+AS
4.9	Quote = 12 174,60 + 7 913,49 √ SF √ M = R20 308,09 √ CA	1Sf correct values used 1M method 1CA Correct answer	(3)	12.2.1
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QUESTION 5

Question	Solution	Explanation		LO+AS
5.1	Joe's Mean = $\frac{2200+2400+2400+2600+2800+2800+2600+2200+2300+2500+2500+2700}{12}$ √ M = $\frac{30000}{12}$ √ MA = R 2 500,00 √ CA	1M Correct method used 1MA Method and accuracy 1CA Correct answer and accuracy	(3)	12.4.2
	AND			
	Mpho's Mean = $\frac{2300+3500+1900+2200+2600+3100+2800+2700+3000+1500+2000+2400}{12}$ √ M = $\frac{30000}{12}$ √ MA = R2 500,00 √ CA	1M Correct method used 1MA Method and accuracy 1CA Correct answer and accuracy	(3)	12.4.2
5.2	Joe's Range = 2 800 – 2 200 √ M = 600 √ CA	1M Correct method used 1CA Correct answer and accuracy	(2)	12.4.2
	AND			
	Mpho's Range = 3 500 – 1 500 √ M = 2 000 √ CA	1M Correct method used 1CA Correct answer and accuracy	(2)	12.4.2
5.3	2 200; 2 200; 2 300; 2 400; 2 400; 2 500; 2 500; 2 600; 2 600; 2 700; 2 800; 2 800 Joe's Median = $\frac{2\,500+2\,500}{2}$ √ M = 2 500 √ CA	1M Correct method used 1CA Calculation and accuracy	(2)	12.4.2
	AND			

Question	Solution	Explanation		LO+AS
	1 500; 1 900; 2 000; 2 200; 2 300; 2 400; 2 600; 2 700; 2 800; 3 000; 3 100; 3 500 Mpho's Median = $\frac{2\,400+2\,600}{2}$ √ M = 2 500 √ CA	1M Correct method used 1CA Calculation and accuracy	(2)	12.4.2
5.4	2 200; 2 200; 2 300; 2 400; 2 400; 2 500; 2 500; 2 600; 2 600; 2 700; 2 800; 2 800 Joe's modes = 2 200, 2 400, 2 500, 2 600 and 2 800 √ M √ CA	1M correct method used 1CA correct values given (2 values per ½ mark max = 1)	(2)	12.4.2
	AND			
	1 500; 1 900; 2 000; 2 200; 2 300; 2 400; 2 600; 2 700; 2 800; 3 000; 3 100; 3 500 Mpho's mode = nil √ M √ A	1M correct method used 1A Correct answer	(2)	
5.5	Both Means and Medians are the same for both √ O Modes do not help at all – too common or nil Range is small for Joe's Range for Mpho's much larger √ O Choice = Joe's – start at higher rate or √ R Choice = Mpho's – get more with more responsibilities	2O learners observation of results for central tendencies correct 1R Accept learner's choice and any valid reason for choice.	(3)	12.4.5
5.6	Choice = Joe's √ O Because better starting pay i.e. Joe's is R2 200 and Mpho's only R1 500. √ R	1O Correct choice/option 1R logical reason given	(2)	12.4.5
5.7	Choice = Mpho's Mpho's has a better maximum pay. Mpho's is R3 500 and Joe's only R2 800. √ R	1O Correct choice/option 1R logical reason given	(2)	12.4.5
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QUESTION 6				
Question	**Solution**	**Explanation**		**LO+AS**
6.1	Outside Height = 3,7 cm √ A	1A Accurately measured	(1)	12.3.1
6.2	Scale = 3,7 cm **:** 1 m √ SF = 3,7 **:** 100 √ M = 37 **:** 1 000 √ CA	1SFCorrect values used 1M Correct method 1CA Correct answer and accuracy	(3)	12.3.3
6.3	Inside volume = 0,95 x 0,9 x 0,4 √ M √ C = 0,342 m^3 √ CA	1M Method 1C Conversion to metres 1CA Consistent accuracy	(3)	12.3.1
6.4	Concrete needed = Whole Volume – Inside Volume = (1 x 1 x 0,5) – (0,95 x 0,9 x 0,4) √√ SF = 0,5 – 0,342 √√ M A = 0,158 m^3 √ CA	2 SF 1 mark for each group of correct values 2MA 1 mark for method and 1 mark for accuracy 1CA Correct answer and consistency	(5)	12.3.1
6.5	Cost of Dustbin = 0,158 x R 255,50 √ M = 40,369 √ MA = R 40, 37 √ R	1M Method used 1MA Method and accuracy 1R Rounded off correctly	(3)	12.3.1
6.6	Cost of plastic dustbin = 0,158 x R185,95 √ M = 29,3801√ MA = R 29,38 √ R	1M Method used 1MA Method and accuracy 1R Rounded off correctly	(3)	12.3.1
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		TOTAL:	**150**	