



Province of the
EASTERN CAPE
EDUCATION

NATIONAL SENIOR CERTIFICATE

GRADE 12

SEPTEMBER 2013

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

This memorandum consists of 7 pages.

QUESTION 1 [27 MARKS]

Question	Solution	Explanation	LO+AS	
1.1	1.1.1	65% of 580 + $\frac{1}{4}$ (247,68 + 3 246,32) = 377 + 873,5 ✓ MA = 1 250,5 ✓ CA	1MA Correct method and accuracy 1CA Consistent accuracy (2)	12.1.1
	1.1.2	5,75 x 1 000 = 5 750 grams ✓ MA	1MA Method and accuracy (1)	12.3.2
	1.1.3	2 453 000 = 2,453 x 10 ⁶ ✓ MA	1A Correct answer (1)	12.1.1
	1.1.4	$\sqrt[3]{64} + \sqrt{121} - 3^2$ = 4 + 11 - 9 ✓ MA = 6 ✓ CA	1MA Method and accuracy 1CA Consistent accuracy (2)	12.1.1
	1.1.5	Cost of 1 can = 58,20 ÷ 12 ✓ M = R4,85 ✓ A	1M Dividing by 12 1A Correct answer (2)	12.1.1
	1.1.6	12 ÷ 4 = 6 ÷ x ✓ M ∴ 3 = 6 ÷ x ∴ x = 2 ✓ A OR $\frac{12}{4} = \frac{6}{x}$ ✓ M ∴ 12x = 6 × 4 ∴ 12x = 24 x = 2 ✓ A	1M Correct method used 1A Correct answer (2) 1M Correct method used 1A Correct answer (2)	12.1.1
1.2	1.2.1	Other Things = $1 - \frac{1}{4} - \frac{2}{5}$ = $\frac{20-5-8}{20}$ ✓ M A = $\frac{7}{20}$ of salary ✓ CA OR $\frac{1}{4} \times 26\ 560 = 6\ 640$ $\frac{2}{5} \times 26\ 560 = 10\ 624$ Other things = 26 560 - 6 640 - 10 624 = 9 296 ✓ MA = $\frac{9\ 296}{26\ 560} = 0,35 = \frac{35}{100} = \frac{7}{20}$ ✓ CA	1MA Correct method and accurate conversion 1CA Correct answer and accuracy (2)	12.1.3
	1.2.2	(a) Rent = $\frac{1}{4} \times 26\ 560$ ✓ M = R6 640,00 ✓ CA (b) Food = $\frac{2}{5} \times 26\ 560$ ✓ M = R10 624,00 ✓ CA	1M Correct method used 1CA Consistent accuracy (2) 1M Correct method used 1CA Consistent accuracy (2)	12.1.3 12.1.3
	1.2.3	Accept any two reasonable suggestions here e.g. Clothing, transport, schooling, medical costs, etc. ✓ ✓ R	2R Reasonable suggestions given (2)	12.4.4
1.3	1.3.1	$\frac{8}{10}$ ✓ MA = $\frac{4}{5}$ ✓ MA	2MA correct fraction and correct simplification (2)	12.1.1
	1.3.2	$\frac{6}{8}$ ✓ MA = $\frac{3}{4}$ ✓ MA	2MA correct fraction and correct simplification (2)	12.1.1
	1.3.3	Table A as I get more pizza ✓ O	1O Reasoning and choice (1)	12.4.4

1.4	1.4.1	$31 - 16 \checkmark$ MA $= 15 \text{ days } \checkmark$ A	1MA Correct method and accuracy 1A Correct answer (2)	12.1.1
	1.4.2	Accommodation = $450 \times 15 \checkmark$ MA $= R6\,750,00 \checkmark$ CA	1MA Correct method and accuracy 1CA Consistent Accuracy (2)	12.1.1

QUESTION 2 [21 MARKS]

Question	Solution	Explanation	LO+AS	
2.1	2.1.1	Education \checkmark R	1R Correct reading from graph (1)	12.2.3
	2.1.2	Defence \checkmark R	1R Correct reading from graph (1)	12.2.3
	2.1.3	Education = $1058,4 \times 20\% \checkmark \checkmark$ SF $= R211,68 \text{ billion } \checkmark$ CA	2SF Correct values used 1CA Correct answer including the word billion (3)	12.2.3
	2.1.4	Health = $1058,4 \times 12\% \checkmark \checkmark$ SF $= R127,008 \text{ billion}$ $= R127,01 \text{ billion } \checkmark$ CA	2SF Correct values used 1CA Correct answer including the word billion (3)	12.2.3
	2.1.5	Hospitals, clinics, nurses, etc. accept any 2 valid answers here. $\checkmark \checkmark$ O	2O Correct suggestions (2)	12.2.4
2.2	2.2.1	% Building and Maintenance $= 100 - 65 - 23 \checkmark$ SF \checkmark M $= 12\% \checkmark$ CA	1SF Correct values used 1M Correct method used 1CA correct answer (3)	12.2.3
	2.2.2	Salaries = $250 \times 65\% \checkmark$ SF \checkmark M $= R162,5 \text{ billion } \checkmark$ CA	1SF Correct values used 1M Correct method used 1CA correct answer (3)	12.2.3
	2.2.3	Teaching and Learning Material $= 250 \times 23\% \checkmark$ SF \checkmark M $= 57,5 \text{ billion } \checkmark$ CA	1SF Correct values used 1M Correct method used 1CA correct answer (3)	12.2.3
	2.2.4	Yes / No and valid reason given \checkmark O \checkmark R	1O accept either answer so long as 1R reasoning acceptable (2)	12.2.4

QUESTION 3 [24 MARKS]

Question	Solution	Explanation	LO+AS
3.1	Area = $\frac{328+450}{2} \times 65 \checkmark$ SF \checkmark SF $= 25\,285 \text{ m}^2 \checkmark$ CA	2SF Correct values used 1CA correct answer (3)	12.3.1
3.2	No. hectares = $25\,285 \div 10\,000 \checkmark$ M $= 2,5285 \text{ ha } \checkmark$ CA Accept 2,53 ha if rounded off correctly	1M Correct method used 1CA correct answer (2)	12.3.2

3.3	3.3.1	Perimeter = $328 + 70 + 450 + 75$ ✓ SF ✓ M = 923 m ✓ A	1SF Correct values used 1M Correct method used 1A correct answer (3)	12.3.1
	3.3.2	Wire needed = 923×5 ✓ SF ✓ M = 4 615 m ✓ A	1SF Correct values used 1M Correct method used 1A correct answer (3)	12.2.1
	3.3.3	Fencing costs = $4\,615 \times 2,75$ ✓ SF ✓ M = R12 691,25 ✓ A	1SF Correct values used 1M Correct method used 1A correct answer (3)	12.2.1
3.4	3.4.1	Area Cabbages = $\frac{1}{4} \times 25\,285$ ✓ SF ✓ SF = 6 321,25 m ² ✓ CA OR 6 312¼ m ²	2SF Correct values used 1CA Consistent accuracy (3)	12.3.1
	3.4.2	Area Carrots = $\frac{1}{5} \times 25\,285$ ✓ SF ✓ SF = 5 057 m ² ✓ CA	2SF Correct values used 1CA Consistent accuracy (3)	12.3.1
3.5	Fertiliser needed = $25\,285 \times 12,5 \times 2$ ✓ SF ✓ SF ✓ SF = 632 125 g or 632,125 kg ✓ CA		3SF Correct values used 1CA Consistent accuracy (4)	12.2.1

QUESTION 4 [25 MARKS]

Question	Solution			Explanation	LO+AS				
4.1	4.1.1	Grade 12 A		Grade 12 B		Correct values for both tally and frequency in given row (4 + 4) (8)	12.4.2		
		Class Interval	Tally	Frequency	Class Interval			Tally	Frequency
		0 – 10		0	0 – 10				0
		11 – 20		0 ✓	11 – 20			I	1 ✓
		21 – 30	II	2	21 – 30			III	3
		31 – 40	II	2 ✓	31 – 40			II	2 ✓
		41 – 50	IIII I	6	41 – 50			IIII IIII	9
51 – 60	IIII IIII III	13 ✓	51 – 60	IIII IIII IIII	14 ✓				
61 – 70	III	3	61 – 70	I	1				
71 – 80	III	3 ✓	71 – 80	I	1 ✓				
81 – 90	III	3	81 – 90	I	1				
4.1.2	Grade 12 B ✓ RT ✓ A			1RT Correct reading from table 1A Accuracy (2)					
4.1.3	(a)	Between 41 – 60 in Gr12A = $6 + 13$ ✓ RT = 19 learners ✓ A		1RT Correct reading from table 1A Accuracy (2)	12.4.3				
	(b)	Between 41 – 60 in Gr12B = $9 + 14$ ✓ RT = 23 learners ✓ A		1RT Correct reading from table 1A Accuracy (2)	12.4.3				
4.1.4	Grade 12A = 10 Grade 12B = 15 ✓ M Therefore Grade 12 B more learners 50% and below ✓ A			1M Method used 1A Correct answer (2)	12.4.3				
4.1.5	Scored above 70% = $2 + 6$ ✓ RT ✓ RT = 8 learners ✓ CA			2RT Correct values used from table 1CA Correct calculation and accuracy (3)	12.4.3				

4.1.6 Grade 12 TEST RESULTS

Mark allocation:

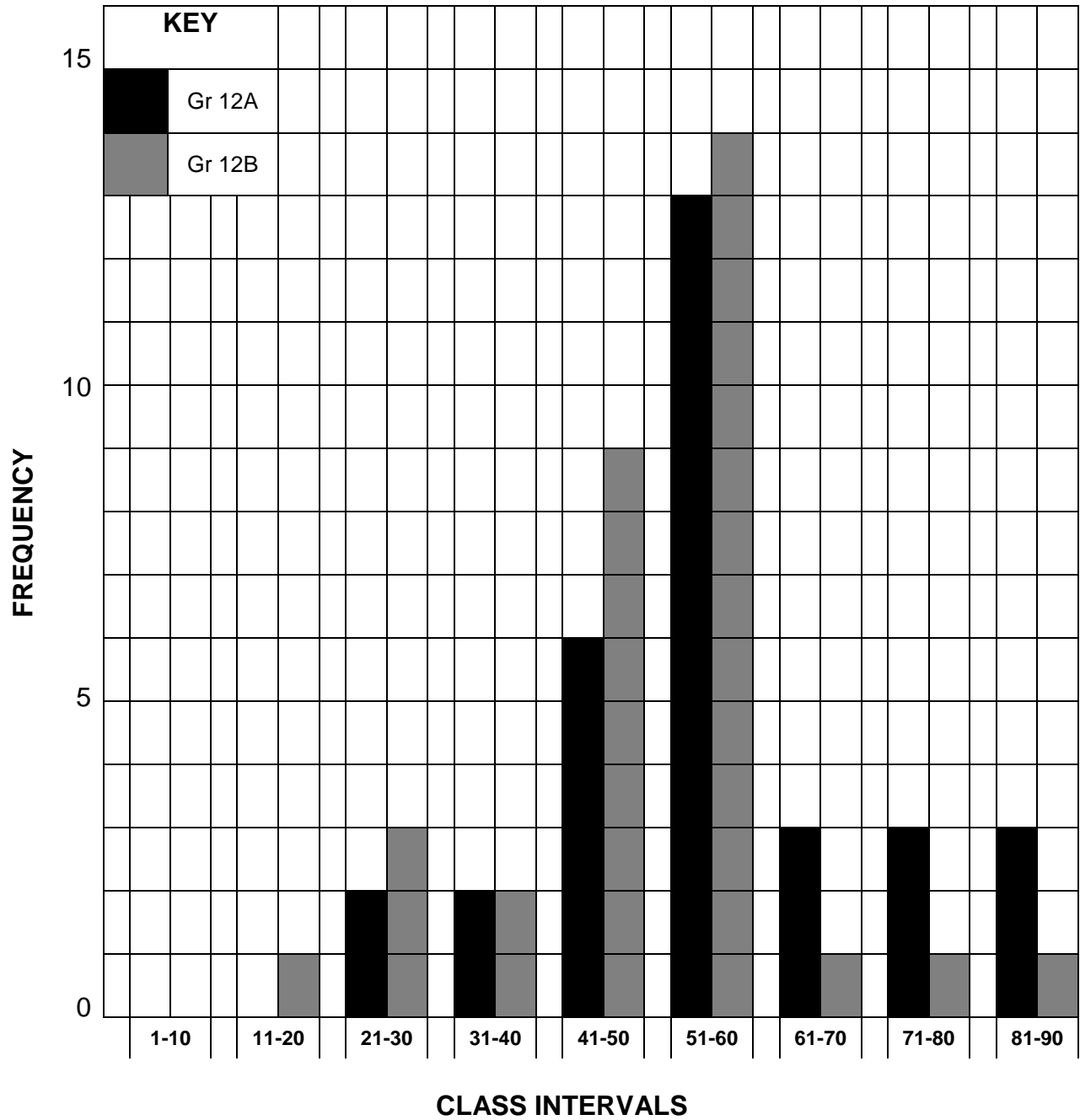
1 Mark for Key

1 Mark correct graph

4 Marks for 4 pairs of correct bars(6)

12.2.2

GRADE 12 TEST RESULTS



QUESTION 5 [26 MARKS]

Question		Solution		Explanation	LO+AS
5.1	5.1.1	(a)	15 000 000 cm ✓ A	1A Correct answer (1)	12.3.3
		(b)	15 000 000 ÷ 100 000 ✓ M = 150 km ✓ CA	1M method 1CA Correct answer (2)	12.3.3
	5.1.2	(a)	Distance CT to Johannesburg = 7,9 x 150 km ✓ SF = 1 185 km ✓ CA Allow 1 mm either way in measuring	1SF Correct measurement 1 CA Consistent Accuracy (2)	12.3.3
		(b)	Durban to Kimberley = 4 x 150 km ✓ SF = 600 km ✓ CA Allow 1 mm either way in measuring	1SF Correct measurement 1CA Consistent Accuracy (2)	12.3.3
	5.1.3	South West ✓ ✓ CA		2CA Correct answer and accuracy (2)	12.3.3
5.2	Durban to Cape Town = 8,1 x 150 ✓ SF = 1 215 km ✓ A Cape Town to Johannesburg = 1 185 km ✓ A Johannesburg to Durban = 3 x 150 ✓ SF = 450 km ✓ A Total = 1 215 + 1 185 + 450 ✓ M = 2 850 km ✓ CA OR 8,1 + 7,9 + 3,0 = 19,0 19,0 x 150 = 2 850 km			1SF Correct values used 1A Correct answer 1A Correct answer 1SF Correct values used 1A Correct answer 1M Correct method 1CA Correct answer (7)	12.3.4
5.3	5.3.1	Fuel needed = 2 850 x 3 ✓ SF ✓ M = 8 550 litres ✓ CA		1SF correct values used 1M Correct method 1CA Consistent accuracy (3)	12.2.1
	5.3.2	Fuel Cost = 8 550 x 12,06 ✓ SF ✓ M = R103 113,00 ✓ CA		1SF correct values used 1M Correct method 1CA Consistent accuracy (3)	12.2.1
5.4	7 cm : 28 km ✓ M 7 cm : 2 800 000 cm ✓ C Scale = 1:400 000 ✓ M ✓ CA			1M Correct method 1C Conversion to cm 1M method 1CA Consistent accuracy (4)	12.3.4

QUESTION 6 [27 MARKS]

Question	Solution	Explanation	LO+AS	
6.1	6.1.1	Deposit = $358\,000 \times 10\%$ ✓ SF ✓ M = R35 800,00 ✓ CA	1SF correct values used 1M Correct method 1CA Consistent accuracy (3)	12.1.1
	6.1.2	Money borrowed = $358\,000 - 35\,800$ ✓ M = R322 200,00 ✓ CA	1M Correct method 1CA Consistent accuracy (2)	12.1.1
	6.1.3	A = $322\,200 + 322\,200 \times 12,5\% \times 10$ ✓ SF = $322\,200 + 402\,750$ ✓ M = R724 950,00 ✓ CA	1SF correct values used 1M Method accurate 1CA Consistent accuracy (3)	12.1.1
	6.1.4	A = $358\,000(1 + 0,11)^{10}$ ✓ SF ✓ C = R1 016 512,71 ✓ CA	1SF correct values used 1C conversion of % to decimal 1CA Consistent accuracy (3)	12.1.1
	6.1.5	Bank A – much better charges ✓ O	1O Opinion (1)	12.1.1
6.2	6.2.1	Radius = $5,5 \div 2 = 2,75$ m ✓ M Volume = $3,14 \times 2,75^2 \times 2,5$ ✓ SF = 59,365625 = $59,37\ m^3$ ✓ CA	1M calculating radius 1SF correct values used 1CA Consistent accuracy (3)	12.3.3
	6.2.2	Kilolitres = 59,37 kl ✓ C	1C Conversion correct(1)	12.3.2
6.3	6.3.1	SA = $3,14 \times 2,75^2$ ✓ SF = 23,74625 = $23,75\ m^2$ ✓ CA ✓ A	1SF Substitution 1CA Consistent accuracy 1A Correct unit (3)	12.3.1
	6.3.2	Cost of netting = $23,75 \times 125$ ✓ SF ✓ M = R2 968,75 ✓ CA	1SF correct values used 1M Method accurate 1CA Consistent accuracy (3)	12.3.1
6.4	6.4.1	a = Water ✓ A b = Hamburger : Juice ✓ A c = Pie: Water ✓ A	3A Correct answers (3)	12.4.5
	6.4.2	$P(\text{Pie : Juice}) = \frac{1}{6} = 16,67\%$ ✓ A ✓ A	2A Correct answers (2)	12.4.5

TOTAL: 150