Province of the
EASTERN CAPE
EDUCATION

NATIONAL SENIOR CERTIFICATE

GRADE 11

NOVEMBER 2011

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 11 pages.

QUESTION 1 [17 MARKS]

Question	Solution	Explanation	LO+AS
1.1.1	% Deposit = $\frac{445}{4450}$ x 100 ✔ M = 10% ✔ A	1M Correct method used 1A Correct answer (2)	11.1.1
1.1.2	Payment = No. of payments x Monthly Amount Payment = 24 x R 250 ✔ SF ✔ M = R 6000 ✔ CA	1SF Correct values used 1M correct method 1CA Correct answer (3)	11.1.2
1.1.3	Total Payment = 6000 + 445 ✔ M = R 6445 ✔ CA	1M Correct method 1CA Consistently accurate (2)	11.1.2
1.1.4	Saving = 6445 – 4450 ✔ MA = R 1995 ✔ A	1MA Correct method accurately used 1A Correct answer (2)	11.1.2
1.1.5	% Interest paid = $\left(\frac{1995}{4450} \times 100\right) \div 2$ ✔ M ✔ SF = 44,83 ÷ 2 = 21,42% ✔ CA	1M Correct method 1SF Correct values used 1CA Consistently accurate (3)	11.1.2
1.2.1	Using $A = P(1+i)^n$ A = ? P = 4450 i = 11,5% n = 2yr = 0,115 ✔ M A = 4450 $(1 + 0{,}115)^2$ ✔ ✔ SF = R 5532,35 ✔ CA	1M Correct changing to decimal 2SF Correct substitution of values P and i into equation 1CA Consistent accuracy (4)	11.1.2
1.2.2	Use Bank method as it is cheaper ✔ A	1A Correct answer and reasoning (1)	11.2.1

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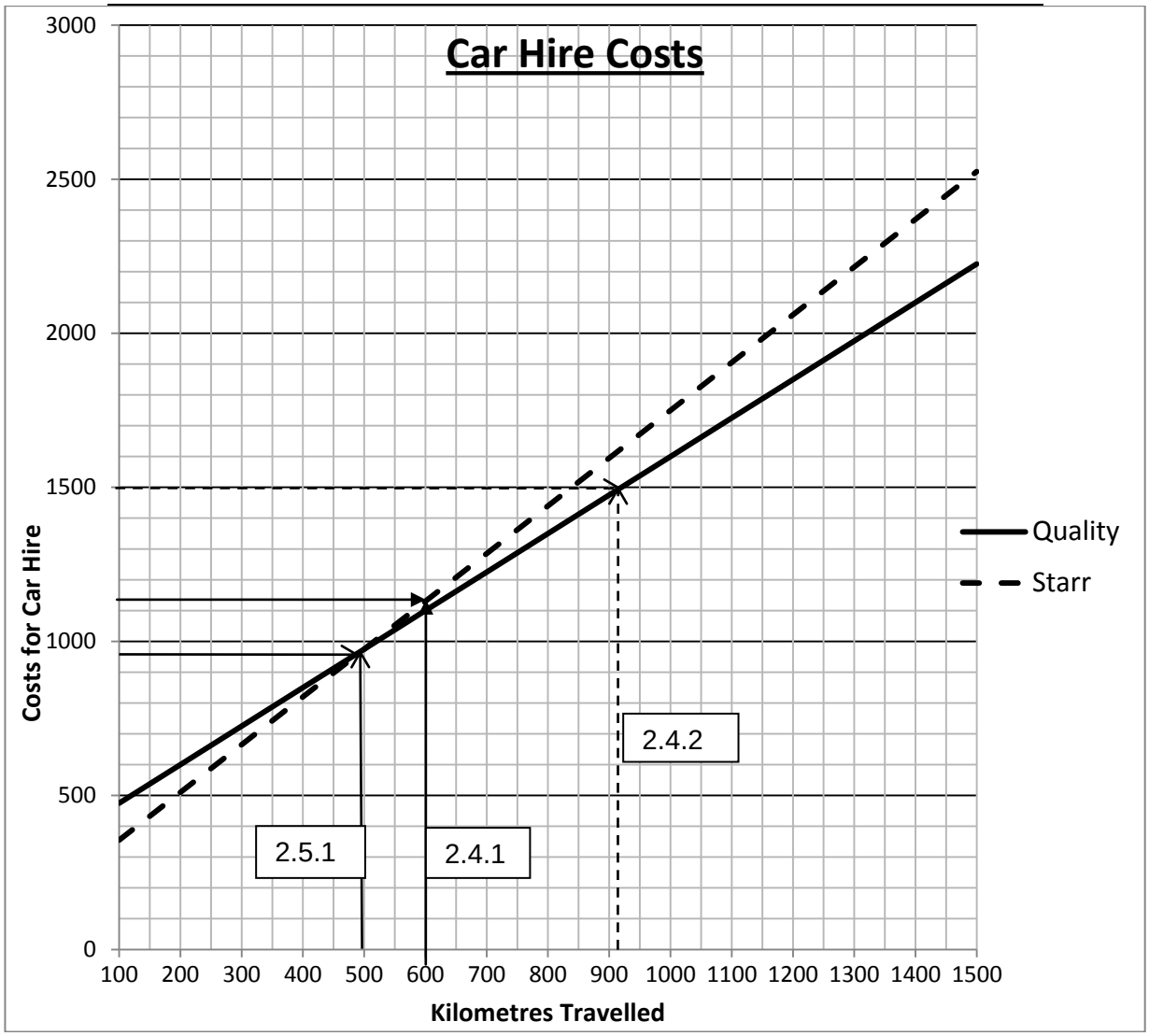
QUESTION 2 [26 MARKS]

Question	Solution	Explanation	LO+AS
2.1.1	Quality Car Hire $y = 1{,}25x + 350$ ✔ ✔ SF **or** Cost = 1,25 (no. of km travelled) + 350 ✔ ✔ SF	2 SF correct values substituted **or** 2 SF correct values substituted (2)	11.2.1
2.1.2	Starr Car Hire $y = 1{,}55x + 200$ ✔ ✔ SF **or** Cost = 1,55 (no. of km travelled) + 200 ✔ ✔ SF	2 SF correct values substituted **or** 2 SF correct values substituted (2)	11.2.1
2.2	a = R350 ✔ CA b = 500 x 1,25 + 350 = R975 ✔ MA c =1000 x 1,25 + 350 = R 1600 ✔ MA d = 1500 x 1,25 + 350 = R 2225 ✔ MA	1CA Correct value 1MA Accuracy and correct method used 1MA Accuracy and correct method used 1MA Accuracy and correct method used (4)	
	e = R200 ✔ CA f = 200 x 1,55 + 200 = R510 ✔ MA G =1000 x 1,55 + 200 = R 1750 ✔ MA h = 1500 x 1,55 + 200 = R 2525 ✔ MA	1CA Correct value 1MA Accuracy and correct method used 1MA Accuracy and correct method used 1MA Accuracy and correct method used (4)	

Question	Solution	Explanation	LO+AS
2.3	See below		11.2.1



✔ ✔ Any 2 correct points plotted (for each graph) ✔ Correct vertical intercept (for each graph)	(6)

Question	Solution	Explanation	LO+AS
2.4.1	R 1130 (accept from R1110 – R 1150) ✔ ✔RG	2RT for using graph(lines on graph) and correct value (2)	11.2.2
2.4.2	Quality Car Hire because it will give me more than 900 km where as Starr Car Hire gives less than 900 km ✔A✔J	1A Accurate reading from graph 1J correct justification (2)	11.2.2
2.5.1	500;975 (accept as close as, will depend on graph done)✔ ✔A	2A one mark per correct co-ordinate given (2)	11.2.1
2.5.2	At this point both cost the same(✔R) to hire at 500 kilometres travelled (✔A)	1R Correct deduction made 1A Correct distance given (2)	11.2.1
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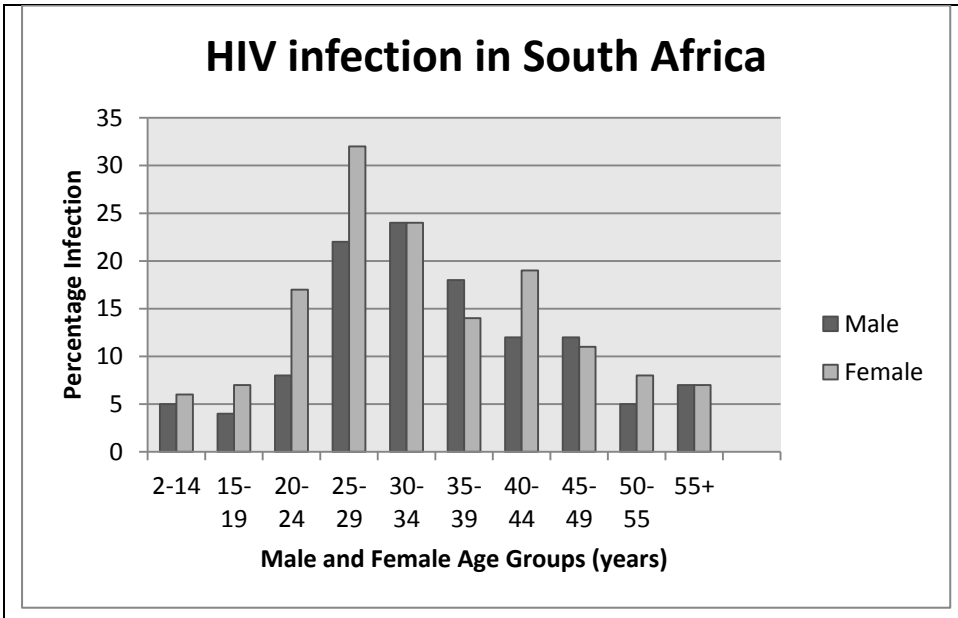
QUESTION 3 [23 MARKS]

Question	Solution	Explanation	LO+AS
3.1	22% ✔RT	1RT Correct reading from table (1)	11.4.1
3.2	Females ✔RT	1RT Correct reading from table (1)	11.4.1
3.3	% infected = $\frac{6{,}29\ million}{45\ million}$ X 100 ✔M ✔A = 13,97778 ≈ 14% ✔CA	1M Correct method 1A Correct values use 1CA Correct answer (3)	11.4.3
3.4	25 – 29 yrs ✔RT	1RT Correct reading from table (1)	11.4.1

3.5 See below 11.4.5



✔ Correct bar graph used
✔ Correct values for both axes
✔ ✔ ✔ Correct plotting for 3 groups (5)

Question	Solution	Explanation	LO+AS
3.6	Average Male infection rate (ages 20-49) $= \frac{8+22+24+18+12+12}{6}$ ✔ MA $= \frac{96}{6}$ = 16% ✔ CA	1MA Correct method and accuracy 1CA Correct answer and accuracy (2)	11.4.3
3.7	Average Female infection rate (ages 20-49) $= \frac{17+32+24+14+19+11}{6}$ ✔ M $= \frac{117}{6}$ ✔ A = 19,5% ✔ CA	1M Correct method used 1A Accuracy in calculation 1CA Correct answer and accuracy (3)	11.4.3
3.8	No. of females = 45 x 19,5% ✔ M = 8,775 = 9 women ✔ CA No. of males = 55 x 16% ✔ M = 8,8 = 9 men ✔ CA Total = 9 + 9 = 18 employees could be infected ✔ A **or** No. of females = 45 x 0,195 ✔ M = 8,775 = 9 women ✔ CA No. of males = 55 x 0,16 ✔ M = 8,8 = 9 men ✔ CA Total = 9 + 9 = 18 employees could be infected ✔ A	1M Correct method 1CA Answer correct 1M Correct method 1CA Correct answer 1A Correct answer (5) **or** 1M Correct method 1CA Answer correct 1M Correct method 1CA Correct answer 1A Correct answer (5)	

Question	Solution	Explanation	LO+AS
3.9	Clinic at work HIV Counselling given ARV issued at work Aids Education	2R any 2 valid suggestions given 2) **[23]**	11.4.6

QUESTION 4 [24 MARKS]

Question	Solution	Explanation	LO+AS
4.1	Perimeter = 256 + 149 + 396 + 159 ✔ ✔ SF = 960 m ✔ CA	2SF correct values used (1 mark for 2 values) 1CA Correct answer (3)	11.3.1
4.2	No. of post needed = 960 ÷ 2,5 ✔ M ✔ SF = 384 posts ✔ CA **or** (256 ÷ 2,5) + (149 ÷ 2,5) + (396 ÷ 2,5) + (159 ÷ 2,5) ✔ M = 102,4 + 59,6 + 158,4 + 63,6 = 103 + 60 + 159 + 64 ✔ MA = 386 posts ✔ CA	1M correct method 1SF correct values used 1CA Correct answer (3) **or** 1M correct method 1MA correct values calculated and rounded up 1CA Correct answer (3)	11.3.1
4.3	Cost of posts = 384 x 12,65 ✔ M = R 4857,60 ✔ CA **Or** Cost of posts = 386 x 12,65 ✔ M = R 4882,90 ✔ CA	1M Correct method used 1CA Answer correct (2) **Or** 1M Correct method used 1CA Answer correct (2)	11.1.2

Question	Solution	Explanation	LO+AS
4.4.1	Chicken wire needed = 960 m ✔ CA	1CA Correct transferring of value from perimeter (1)	11.3.2
4.4.2	Cost of Chicken wire = 960 x 18,75 ✔ MA = R 18000 ✔ CA	1MA correct values and method used 1CA correct answer (2)	11.1.2
4.5	Area = $\left(\frac{AB+DC}{2}\right) \times height$ = $(\frac{256+396}{2}) \times 135$ ✔ ✔ SF = 326 x 135 ✔ CA = 44010 m^2 ✔ A **or** 396 – 256 – 95 = 45 m ✔ M Area =(0,5 x 95 x 135)+(256 x 135)+(0,5 x 45 x 135) ✔ SF = 6412,5 +34560 + 3037,5 ✔ CA = 44010 m^2 ✔ A	2SF Correct substitution of values 1CA consistent accuracy 1A Correct answer (4) **or** 1M Correct method 1SF Correct substitution of values 1CA consistent accuracy 1A Correct answer (4)	111.3.1
4.6	Number of ha = 44010 ÷ 10000 ✔ M = 4,401 ha ✔ CA	1m Correct method 1CA Correct answer (2)	11.3.2
4.7	Number of cabbages = 44010 x 9 ✔ ✔ MA = 396090 cabbages ✔ CA	2MA Correct method and values 1CA Correct answer (3)	11.3.1

Question	Solution	Explanation	LO+AS
4.8.1	When using 3,14 Volume = $\pi r^2 h$ = π 3,14 x $(2,5)^2$ x 2,5 ✔ ✔ SF = 49,06 m^3 ✔ CA	2SF Correct substitutions of values 1CA Correct answer (3)	11.3.1
4.8.2	49,06 m^3= 49,06 kℓ ✔ CA	1CA Correct answer (1)	

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QUESTION 5 [10 MARKS]

Question	Solution	Explanation	LO+AS
5.1	Box volume = 10 x 10 x 5 = 500 cm^3 ✔ M Volume of fudge piece = 5 x 5 x 1 = 25 cm^3 ✔ MA Number of pieces = 500 ÷ 25 ✔ MA = 20 pieces ✔ CA	1M correct method used 1MA correct method and accurate 1MA Correct method and accurate 1CA Correct answer (4)	11.3.1
	or Length = 2 pieces Height = 5 pieces ✔ M Width = 2 pieces ✔ MA Number of pieces = 2 x 2 x 5 ✔ MA = 20 pieces ✔ CA	**or** 1M correct method used 1MA correct method and accurate 1MA Correct method and accurate 1CA Correct answer (4)	

	or Length = 2 pieces Height = 1 piece ✔ M Width = 10 pieces ✔ MA Number of pieces = 2 x 1 x 10 ✔ MA = 20 pieces ✔ CA	**or** 1M correct method used 1MA correct method and accurate 1MA Correct method and accurate 1CA Correct answer (4)	
5.2.1	Total Takings = 525 + 750 + 375 + 105 + 240 ✔ SF = R 1995 ✔ CA	1SF Correct values used 1CA Correct answer (2)	11.4.2
5.2.2	Cost of box of fudge = 750 ÷ 25 ✔ MA = R 30 ✔ CA	1MA correct method and values 1CA correct answer (2)	11.4.2
5.2.3	P(Fudge) = $\frac{25}{380}$ x 100 = 6,58 = 7% ✔ M ✔ CA	1M Correct method 1CA Consistent accuracy (2)	11.4.5

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TOTAL: 100