

NATIONAL SENIOR CERTIFICATE

GRADE 12

MATHEMATICAL LITERACY P2

NOVEMBER 2014

MEMORANDUM

MARKS: 150

Symbol	Explanation
M	Method
M/A	Method with accuracy
CA	Consistent accuracy
A	Accuracy
С	Conversion
S	Simplification
RT/RG	Reading from a table/Reading from a graph
SF	Correct substitution in a formula
О	Opinion/Example
P	Penalty, e.g. for no units, incorrect rounding off, etc.
R	Rounding off
NPR	No penalty for rounding

This memorandum consists of 20 pages.

	TION 1 [38 MARKS]	Ermloneties	
Ques	Solution	Explanation	<u> </u>
	√A		L4
1.1.1	The data is discrete , because the violent incidents is	1A correct type	
	counted/whole numbers/integral values /categorised ✓O	1O reason	
		(2)	
*			L3
1.1.2	Total number of incidents involving boys		
	= 13 + 12 + 18 + 11 + 10 + 16		
	$=80 \checkmark S$	1S total number of boys	
	Total number of incidents involving girls		
	$= 7 + 3 + 4 + 7 + 5 + 19$ \sqrt{RG}	1RG reading from graph	
	= 45 ✓ CA	1CA total number of girls	
	- 13 V CA	TCA total number of girls	
	Difference = 80 – 45		
		1.04 1:00	
	= 35√ CA	1CA difference	
	OP		
	OR	OR	
	Total for boys and girls		
	= 20+15+22+18+15+35	1C T-4-1	
	$= 125 \qquad \checkmark S$	1S Total number of boys	
		and girls	
	Total for boys		
	= 13 + 12 + 18 + 11 + 10 + 16		
	$=80 \checkmark S$	1S Total number of boys	
	Number of girls = $125 - 80$		
	= 45 ✓ CA	1CA number of girls	
	Difference = 80 – 45		
	$= 35 \checkmark CA$	1CA Difference	
	- 33 V CA	TCA Difference	
	OR	OR	
	The total of the differences between boys and girls	OK	
	, ,	QA B ::: 1:55	
	$\begin{vmatrix} \checkmark & A & \checkmark & A & \checkmark & A \\ = 6 + 9 + 14 + 4 + 5 - 3 \end{vmatrix}$	2A Positive differences	
		1A for negative 3	
	= 35 ✓ CA	1CA the differences	
		Max 2 marks if part data	
		used	
		Answer only full marks	
		(4)	1

 $^{^{*}}$ This question must not be marked in Limpopo. The paper will be marked out of 143 and scaled and then the candidates' total mark will be up-scaled to 150 marks

$\begin{array}{c} 3 \\ NSC-Memorandum \end{array}$

Ques	Solution	Explanation	
* 1.1.3	Cyber bullying ✓A Girls avoiding physical violence. ✓✓O OR	1A/RG reading from graph	L3(1) L4(2)
	Girls are afraid of confrontation and fighting $\checkmark \checkmark O$ OR Easier to express their emotions/feelings on social media	2O explanation (3)	
1.2.1	Range = Highest value – Lowest value $5 = 18 - A \checkmark M$ $\mathbf{A} = 13 \checkmark CA$	1M concept of range 1CA value of A	L2
	$A = 18 - 5 = 13\checkmark CA$ OR	OR 1M concept of range using 5 1CA value of A Answer only full marks (2)	
1.2.2	Mean = $\frac{13 + 14 \times 4 + 15 \times 5 + 16 \times 10 + 17 \times 13 + 18 \times 7}{40 \checkmark A} \checkmark M$	NB: Answer from Q 1.2.1 1M adding all 40 values 1A dividing by 40	L2
	$= \frac{651}{40} \checkmark CA$ = 16,275	1CA Simplification NPR	
		Answer only full marks (3)	

^{*} This question must not be marked in Limpopo. The paper will be marked out of 143 and scaled and then the candidates' total mark will be up-scaled to 150 marks

Ques	Solution	Explanation	
1.2.3	Solution $\mathbf{B} = \frac{15 + 16}{2} = 15,5 \checkmark \text{ CA}$ $\mathbf{C} = \frac{16 + 17}{2} = 16,5 \checkmark \text{ CA}$ $\mathbf{D} = 17 \checkmark \text{ CA}$	Explanation 1A identifying the correct values 1 CA value of B [If only B = 15 then one mark and If answer only B=23 then one mark] 1 M concept of median 1 CA value of C 1 CA value of D	L2
		Answer Only full marks (5)	
1.2.4	$P = \frac{30}{40} \checkmark A$ $= 0.75 \checkmark CA$	1A 30 grade 9 boys 1A no. of boys 40 1CA decimal Answer Only full marks (3)	L2
1.2.5	The grade 9 boys are too old for their grade. $\checkmark\checkmark J$ OR	2J reason	L4
	Social: VVJ Need recognition / low self- esteem / identity crisis.		
	OR Economic: To gain favours from others. ✓✓J OR		
	Educational: They are frustrated by their lack of progress. $\checkmark\checkmark J$ OR		
	Environmental factors/ emotional factors ✓ ✓ J		
	OR $\checkmark\checkmark$ J Contextual factors/ No parental control/Peer pressure OR $\checkmark\checkmark$ J Violent community / child headed family/gang related		
	violent community / cinic neaded family/gang related	(2)	

Ques	Solution	Explanation	
1.3.1	Total cost in Rand $ \checkmark A \qquad \checkmark A \qquad \checkmark A $ = 300 for the first 15 passengers + 50 × the number of persons more than 15 \checkmark A	1A constant cost 1A 15 persons 1A number of persons more than 15 1A multiply by the rate R50	
	OR	OR	
	Total cost (in Rand) $ \checkmark A \qquad \checkmark A \qquad \checkmark A $ = 300 + (the number of persons – 15) ×50 \checkmark A	1A constant cost 1A using 15 persons 1A using a variable with explanation 1A multiply by the rate R50	
	OR	OR	
	Total cost (in Rand) $ \checkmark A \qquad \checkmark A \qquad \checkmark A $ = 300 + (n - 15 persons) × 50 $ \checkmark A $ Where n is the number of persons more than 15	1A constant cost 1A using 15 persons 1A using a variable with explanation 1A multiply by the rate R50	
	OR	OR	
	Total cost (in Rand) $ \checkmark A \qquad \checkmark A $ = (number of persons)× 50 – 450 $\checkmark \checkmark A$	2A - 450 1A number of persons 1A multiply by the rate R50 (4)	
1.3.2 (a)	\sqrt{SF} 900 = 300 + (n − 15 persons) × 50 (n − 15 persons) × 50 = 600	1SF Substituting in formula	L3
	n-15 persons = 12 $n=27 \checkmark A$	1A Maximum number	
	OR	OR	
	27 ✓✓RT	2 RT Max number of passengers [Both 25 and 27 one mark and 25 only, no marks] (2)	

Ques	Solution	Explanation	
1.3.2		NB: Use CA from Q1.3.2(a)	L3
(b)	10 learners + 1 teacher 10 learners + 1 teacher 4 learners + 1 teacher	2MA working with ratio	
	∴ 24 learners and 3 teachers A	1A Number of teachers	
	$24:3\checkmark CA$ $= 8:1 \checkmark CA$ OR	1CA ratio in correct order 1CA simplified ratio OR	
	1 educator for 10 learners ✓ MA	1MA working with ratio	
	$\therefore \frac{1}{11} \times 27 = 2,454545 \text{ teachers } \checkmark \text{CA}$	1MA working with ratio 1CA number of teachers	
	∴ 3 teachers ✓ R	1R Rounding up	
	And 24 learners 24 : 3 ✓ CA 8: 1 ✓ CA	1CA ratio in correct order 1CA simplified ratio (5)	
1.3.3	There is only one double six. ✓ A There is 6 combinations of seven. ✓ A ∴ Mr Boitumelo has a larger probability than Miss	1A probability of double six 1A probability of seven	L4
	Ansie to accompany the learners. ✓ O	1O explanation	
	OR	OR	
	$P_{\text{(double six)}} = \frac{\sqrt{A}}{36} \approx 2.8\%$	1A probability of double six	
	$P_{\text{(seven)}} = \frac{6}{36} = \frac{1}{6} \approx 16,7\% \checkmark A$	1A probability of seven	
	∴ Mr Boitumelo has a larger probability than Miss Ansie to accompany the learners. ✓ O	10 explanation (3)	
		[38]	

QUEST	QUESTION 2 [33MARKS]		
Ques	Solution	Explanation	
2.1.1	Volume of petrol = $\frac{R500}{R14,04}$ litre = 35,61253561 litre \checkmark A	1M dividing by R14,04/ℓ 1A volume	L3
	Distance each model can travel with 35,613 ℓ of petrol:		
	Sonic 1.6: $\frac{35,613}{6,7} \times 100 \text{ km} \approx 531,54 \text{ km}$ \checkmark CA	1CA distance	
	Aveo 1.6 : $\frac{35,613}{7,3} \times 100 \text{ km} \approx 487,85 \text{ km}$	1CA distance	
	∴ Sonic 1.6 will travel a greater distance. ✓ ✓ O	2O conclusion	
	OR	OR	
	Volume of petrol = $\frac{R500}{R14,04/\ell}$ = 35,613 ℓ \checkmark A Finding distance using consumption rate for each model:	1M dividing by R14,04/ℓ 1A volume	
	Sonic rate = $\frac{100 \text{km}}{6.7 \ell} = 14,925 \text{km/}\ell$		
	Distance = $14,925 \text{ km/}\ell \times 35,613 \approx 531,5 \text{ km} \checkmark \text{CA}$	1CA distance	
	Aveo rate = $\frac{100 \text{km}}{7.3 \ell} = 13,70 \text{km/}\ell$		
	Distance = 13,70 km/ ℓ × 35,613 ≈ 487,9 km \checkmark CA	1CA distance	
	∴ Sonic 1.6 will travel a greater distance. ✓ ✓ O	2O conclusion [Correct conclusion only 2 marks]	

Ques	Solution	Explanation	
2.1.2	Number of stops and the length of stopping while the engine is running. ✓ O OR The driving pattern of the driver for example fast acceleration and hard breaking. ✓ O	10 any FIRST correct factor	L4
	OR OR OR Driving at high speeds with open windows OR Use of the air conditioner. ✓ O OR The condition of the car with relation to tyre pressure, load, etc. ✓ O OR Condition of the road surface, and the slope of the road. ✓ O OR Mechanical fault / condition / Electronic damage OR	10 for any SECOND correct factor	
	Load and number of passengers in vehicle ✓ O OR Traffic congestion ✓ O	(2)	
2.1.3	Sonic Monthly petrol cost (in Rand) $ \sqrt{M} \sqrt{A} \sqrt{MA} $ $ = \frac{35000}{12} \times 14,04 \times \frac{6,7}{100} = 2743,65 \checkmark CA $	1M dividing by 12 1A multiply petrol price 1MA multiply by consumption rate 1 CA petrol cost Sonic	
	Total running cost(in Rand) = $2743,65 + 2657,00$ = $5400,65 \checkmark CA$ Aveo Monthly petrol cost (in Rand)	1CAtotal running cost for the Sonic	
	$= \frac{35000}{12} \times 14,04 \times \frac{7,3}{100} = 2989,35 \checkmark CA$	1 CA petrol cost Aveo	
	Total running cost(in Rand) = 2 989,35 + 1 942,00 = 4 931,35 ✓ CA	1CA total running cost for the Aveo	
	∴ Aveo 1.6 is more economical. ✓ O	10 conclusion	
	OR	[3 out of 8 marks if petrol cost ignored]	

Ques	Solution	Explanation	
2.1.3 Cont.	Sonic 1.6 \checkmark M Instalment cost per year = $12 \times R = 2657$	1M multiplying by 12	L4
	$= R 31 884$ Petrol cost per year = 35 000 km $\times \frac{6.7\ell}{100 \text{ km}} \times R14,04/\ell \checkmark A$	1MA multiply by consumption rate 1A multiply petrol price	
	$= 2345 \times R14,04 = R32923,80 \checkmark CA$	1CA petrol cost Sonic	
	Total running cost for the year = monthly instalments for 12 months + petrol cost per year = R 31 884 + R 32 923,80 =R 64 807,80 ✓ CA Aveo 1.6 Instalment cost per year = 12 × R 1 942 = R 23 304	1CA total running cost for the Sonic	
	Petrol cost per year = $35\ 000\ \text{km} \times \frac{7,3\ell}{100\ \text{km}} \times \text{R14,04/} \ell$ = $2\ 555 \times \text{R14,04}$ = R 35 872,20 \checkmark CA	1 CA petrol cost Aveo	
	Total running cost per year = monthly instalments for 12 months + petrol cost per year = R 23 304 + R 35 871,20 =R 59 176,20 ✓ CA	1CA total running cost for the Aveo	
	The Aveo 1.6 is more economical. ✓ O	10 conclusion	
	✓MA OR R14,04 / $\ell \times 6.7 = \text{R94,068}$ ✓ A Sonic: R94,068 : 100 x : 35 000	OR 1MA multiply by consumption rate 1A multiply petrol price 1 CA petrol cost Sonic	
	$∴ x = R32 923,80 \checkmark CA$ $✓ M$ Total running cost = R32 923,80 + 12 × R2 657 $= R64 807,80 \checkmark CA$	1M multiplying by 12 1CAtotal running cost for the Sonic	
	Aveo: R14,04 / $\ell \times 7,3 = R102,492$ R102,492 : 100 y : 35 000 $\therefore y = R35 872,20 \checkmark CA$ Total running cost = R35 872,2 + 12 × R1 942 = R59 176,20 \checkmark CA \therefore Aveo 1.6 is more economical. \checkmark O	1 CA petrol cost Aveo 1CA total running cost for the Aveo 1O conclusion	
		(8)	

Ques	Solution	Explanation	
2.2.1	Age 6 to 7 years. ✓✓ RG	2RG the age [6 or 7 one mark] [Including other intersection points ONLY one mark] (2)	L2
2.2.2	Growth is a continuous phenomenon. ✓ O OR	10 any FIRST correct reason	L4
	Growth is affected by many factors like nutrition and health.	10 for any SECOND correct reason	
	OR ✓ O		
	It is influenced by genetic makeup inherited from parents.		
	OR		
	This graph is for average heights. ✓ O		
	OR		
	Physical disabilities will influence height ✓ O	(2)	
2.2.3	Between 4 and 6 years Between 11 and 14 years ✓ RG	1RG reading from graph 1RG reading from graph [5 and 13 only one mark]	L2
2.2.4	Boys stay longer than girls in childhood. ✓ ✓ RG	2RG comparing childhood stage	L4
	Both girls and boys remain the same in pre-adolescence. RG	1RG comparing pre- adolescence	
	Girls stay longer in adolescence. ✓✓RG OR	2RG comparing adolescence OR	

Ques	Solution	Explanation	
2.2.4 Cont.	Childhood Girls stay in childhood stage: 7 years Boys stay in childhood stage: 9 years Roughli	2RG number of years in childhood	
	Pre-adolescence Girls stay in pre-adolescent stage: 2 years Boys stay in pre-adolescent stage: 2 years Adolescence Girls stay in adolescent stage: 6 years	1RG number of years in pre-adolescence	
	Boys stay in adolescent stage: 4 years ✓✓RG	2RG number of years in adolescence (5)	
2.2.5	The girls' height slows down/stabilizes/levels/evens out. ✓ ✓ O	20 trend	L4
	OR VVO The girls' growth rate relating to height decreases.	[0 marks or 2 marks] [Trend relating to girls only]	
2.2.6	Height in inches = 165 × 0,3937 = 64,9605 ✓ C The boy's height is above the average height for boys	1C conversion 1A accuracy 2CA conclusion [Range 62 to 65]	L3
	OR	OR	
	Height in cm $= \frac{63}{0,3937} \checkmark C$ $= 160,02 \checkmark A$ $\checkmark \checkmark CA$ The boy's height is above the average height for boys	1C conversion 1A accuracy 2CA conclusion [Range 157 to 165]	
		(4) [33]	

QUES	TION 3 [34 MARKS]		
Ques	Solution	Explanation	
3.1.1	Note: Afrikaans scripts to be marked differently	1MA annual salary	L3
3.1.1	Annual salary = R 20 416,67 \times 12 = R 245 000,04 MA	TiviA amuai saiai y	
	Pension = R 245 000,04 × 6 % = R 14 700 ,00 ✓ CA	1CA pension	
	Taxable amount without bonus = R 245 000,04 - R 14 700,00 = R 230 300, 04 CA	1CA subtracting the pension	
	Taxable annual income ✓ CA = R230 300,04 + R20 416,67 = R250 716,71	1 CA taxable annual income	
	OR	OR	
	Monthly pension = R20 416,67 \times 6% = R1 225 \checkmark MA Monthly taxable salary = R20 416,67 - R1 225	1MA pension	
	= R19 191,67 ✓ CA	1CA subtracting the pension	
	Annual taxable income = R19 191,67 \times 12 + R20 416,67	1MA annual salary	
	= R250 716,71 ✓ CA	1 CA taxable annual income	
	OR Annual taxable income	OR	
	\checkmark MA \checkmark MA $= (13 \times R \ 20 \ 416,67) - (12 \times R \ 20 \ 416,67 \times 6\%)$	1MA multiplying by 13 1MA calculating the pension	
	= R 265 416,71 − R14 700 ✓ CA	1CA subtracting the pension	
	= R250 716,71 ✓ CA	1 CA taxable annual income	
		[Pension omitted lose 2 marks]	
		[Bonus omitted lose 1 mark] (4)	
	✓ A ✓ SF	NB: Amount from Q3.1.1	L3
3.1.2	Rate of tax = $R 29 808 + 25\% \times (R250716,71 - R165600)$	1A for correct tax bracket	
	$= R 29 808 + R 85 116,71 \times 25\%$	1SF for substituting into the	
	$= R 29 808 + R 21 279,18$ $= R 51 087,18 \checkmark CA \checkmark S$	formula	
	$= R 51 087,18 \checkmark CA \checkmark S$	1S simplification	
	Annual tax after rebate = R 51 087,18 - R 12 080,00	1CA for tax amount	
	= R 39 007,18 ✓ CA	10.0	
		1CA for tax amount after	
		rebate NPR	
		(5)	
		(3)	I

Ques	Solution	Explanation	
3.1.3	\checkmark CA Monthly Tax = R 39 007,18 \div 12 = R 3 250,60	1CA for tax value per month	L3
	Net monthly salary = Monthly salary – pension – monthly tax ✓ M = R 20 416,67 – R 1 225 – R 3 250,60 = R 15 941,07 ✓ CA	1M for subtracting both values 1CA net salary [CA only if a monthly salary is used]	
	OR	OR	
	Annual salary after tax = Annual salary – pension – annual tax $\stackrel{\checkmark}{}$ M = R245 000,04 – R 14 700,00 – 39 007,18 = R 191 292,86 $\stackrel{\checkmark}{}$ CA $\stackrel{.}{}$ Net monthly salary = $\frac{\text{R191292,86}}{12}$ = R15 941,07 $\stackrel{\checkmark}{}$ CA	1M for subtracting both values 1CA annual salary 1CA monthly salary [dividing by 12] (3)	
3.2.1	Amount if inflation rate was used for increase ✓ A ✓ M = R44,8 billion × 105,77% = R47,38496 billion ✓ CA This amount is less than the amount which was allocated, therefore her claim was valid. ✓ O	1A correct amount from table 1M percentage increase 1CA increased amount 1M comparing 1O stating that she is correct	L3(4) L4(1)
	OR	OR	
	Amount if inflation rate was used for increase \checkmark A \checkmark M = R44 800 000 000 × 105,77% = R47 384 960 000 \checkmark CA \checkmark M This amount is less than the amount which was allocated, therefore her claim was valid. \checkmark O	1A correct amount from table 1M percentage increase 1CA increased amount 1M comparing 1O stating that she is correct	
	OR	OR	

Ques	Solution	Explanation	
3.2.1			
Cont.	Difference = R47,9 billion − R44,8 billion ✓ A = R3,1 billion ✓ M Percentage increase	1A correct amount from table 1M subtracting correct	
	$= \frac{\text{R3,1 billion}}{\text{R44,8 billion}} \times 100\% \checkmark \text{MA}$ = 6,919642857 %	values 1MA calculating the percentage increase	
	≈ 6,9% ✓ CA Her claim is valid. ✓ O	1CA for rounding off	
	Note [Word billion must be there when subtracting and not for %]	1O stating that she is correct (5)	
3.2.2	Department of National Defence percentage growth from 2013/14 to 2014/15 is 6,9% ✓ CA	* CA from Q3.2.1 1CA correct percentage	L3(3) L4(2)
	South African national budget percentage growth from 2013/14 to 2014/15 $ \checkmark \text{ M/A} $ $= \frac{\text{R1,25 trillion} - \text{R1,15 trillion}}{\text{R1,15 trillion}} \times 100\% \checkmark\text{M} $ $= 8,69565174 \% \checkmark\text{CA} $ Dr Khoza's statement is correct. $\checkmark\text{O}$	1M/A using correct values 1M calculating growth 1CA calculating average % 1O Stating that the increase is greater (5)	L3
3.2.3	Amount 2013/14 = 8,1% × R 41,6 billion + R41,6 billion ✓ M = R3,3639 billion + 41,6 billion = R44,9696 billion ✓ CA	1M for increasing by 8,1% 1CA the amount	L3
	Amount 2014/15 = 5,9% × R 44,9696 billion + R44,9696 billion = R2,6532064 billion + 44,9696 billion ✓ M = R 47,6228064 billion ✓ CA	1M for increasing by 5,9% 1CA the amount	
	OR	OR	
	$\checkmark M$ Actual amount = R 41,6 billion $\times 108,1\% = R 44,9696$ billion	1M for increasing by 8,1% 1CA the amount	
	✓ M R 44,969 6 billion × 105,9% = R 47,622 806 4 billion or R47 622 806 400	1M for increasing by 5,9% 1CA the amount NPR [Penalty 1 mark if billions omitted] (4)	

Ques	Solution	Explanation	
3.2.4	Difference =R48 billion - R47,9 billion = R 0,1 billion. In reality the difference is not 0,1 but an amount of R100 000 000 (one hundred million) Example: R 47,9 billion rounded R48 billion implies that there will be an over allocation of R100 million O	1O for identifying the difference of 0,1 1O For knowing that 0,1 billion is 100 000 000 1O suitable example must be chosen	L4
3.3.1	A visual representation is more understandable (make sense of) for the general public than a table with values only.	2O reason	L4
	OR		
	A visual representation is easier to read than text or table consisting of values. ✓✓ O		
	OR		
	The actual values are in billions and trillions which many people don't understand, where in these graphs percentages are used which are more understandable. $\checkmark\checkmark$ O	(2)	
3.3.2	✓ O A bar graph (multiple/compound) is more appropriate to display this data	1O identifying the type of graph	L4
	The bar graph will allow for a much more-in-depth analysis of the trends in the collection of tax between the different categories over a period of time.	2O for explaining the advantage of a bar graph	
	OR	OR	
	Line or broken line graph ✓ O The two lines will allow for a much more-in-depth analysis of the trends in the collection of tax between the different categories over a period of time. ✓ ✓ O	10 identifying the type of graph 20 for explaining the advantage of a broken line graph	
		(3)	
		[34]	

QUESTI	ON 4 [45 marks]		
Ques	Solution	Explanation	
4.1.1(a)	✓A ✓A ✓CA M15 and M16	1A correct row number 1A seat number 1CA second seat number [15 and 16 two marks] (3)	L2
4.1.1(b)	\checkmark A \checkmark A $24 \times 2 = 48$ seats	1A 24 seats 1A total number of seats (2)	L2
4.1.1(c)	Total income in OR = $(72 \times 78) + (388 \times 48) + (83 \times 42) + (81 \times 28) + (112 \times 15) + (82 \times 10)$ \checkmark S \checkmark RT $+ (81 \times 28) + (112 \times 15) + (82 \times 10)$ \checkmark S \checkmark RT $= 5616 + 18624 + 3486 + 2268 + 1680 + 820$ $= 32494 \checkmark$ CA	* seats from Q 4.1.1 (b) 1MA adding the values 1RT cost zone A and B 1RT cost for zone C and D 1RT cost for zone E and F 1S simplification 1CA answer [One mark for every 2 zones] (6)	L3
4.1.2(a)	Cost for 1 zone B ticket = 48 OR ✓A = R27, 2183 × 48 = R 1 306,48 ✓C	1A cost of ticket 1C convert OR to Rand	L4
	Cost in Euro for one flight ticket = 492, 29 Cost in OR for one flight ticket = $\frac{492,29}{1,87126}$ \checkmark M = 263,08	1M convert Euro to OR	
	Cost in Rand for one flight ticket = $263,08 \times R$ 27, 2183 $\checkmark M$		
	$= 7 160, 59 \checkmark CA$ Total cost per person = R 1 306,48 + R 7 160, 59 = R 8 467,07 \checkmark CA Total cost for two = R 8 467,07 × 2 = R 16 934,14 \checkmark CA	1CA cost of one ticket 1CA calculating total cost per person 1CA calculating total cost for two people	
	OR	OR	

Ques	Solution	Explanation	
4.1.2(a) (cont.)	Cost for 2 zone B tickets = $2 \times 48 \text{ OR} = 96 \text{ OR}$ = $R27, 2183 \times 96$ = $R2612, 96 \checkmark C$	1A cost for one ticket 1C conversion	
	Cost for 2 flight tickets = $2 \times \text{@4}92$, 29		
	= €984, 58 ✓A	1A 2 flight tickets	
		2M convert Euro to rand	
	$= R14 \ 321, 15 $ CA $Total \cos t = R2 \ 612, 96 + R14 \ 321, 15$	1CA cost of 2 tickets in rand	
	= R16 934, 11 ✓CA	1CA total cost	
	OR ✓A	OR	
	Cost for Zone B tickets: $2 \times 48 \text{ OR} = 96 \text{ OR } \checkmark \text{A}$	1A cost for one ticket 1A cost of 2 tickets	
	Flight tickets in OR = $\frac{2 \times 492,29}{1,87126}$ \checkmark C	1C conversion to OR	
	= 526,1588448 ✓CA	1CA ticket price	
	Total cost: $526,1588448 + 96 = 622,1588448 \checkmark CA$	1CA total cost	
	Cost in Rand = $622,1588448 \times 27,2183 \checkmark C$ = $16934,11 \checkmark CA$	1C convert OR to Rand 1CA cost in rand	
		(7)	L2
4.1.2(b)	Time leaving Johannesburg + flight time $= 20h30 + 11h25 = 31h55 \checkmark A$	1A adding	LZ
	✓CA Time in South Africa when they arrived: 07:55 or 7.55 am or five minutes to eight in the morning	1CA correct time [If written as 07h55 one mark only]	
		Answer only full marks (2)	
4.2.1	South westerly (SW) ✓✓A	2A correct direction	L2
	OR		
	South, south westerly (SSW)	(2)	

Ques	Solution	Explanation
4.2.2	This chart only shows distances from Muscat. OR VVO They don't lie in the same direction. OR OR	L4
	This is not a map / strip chart.	2O opinion (2)
4.2.3	Muscat to Sydney $\approx 3349 \text{km} \times 3.5$ $\approx 10716.8 \text{ to } 11721.5 \text{km} \qquad \checkmark \text{CA}$	1RT correct value 1M multiplication by 3 349 1CA correct distance [Range of values 3,2 to 3,5]
		[3 or 4 then max 2 marks]
4.3.1	TSA = P × H + K \checkmark A \checkmark SF = 8 × 110 mm × 250 mm + 58 423 mm ² = 220 000 mm ² + 58 423 mm ² = 278 423 mm ² \checkmark S = 0,278 423 m ² \checkmark C For 0,07 m ² one needs 100m ℓ of paint ∴ 1 m ² one need $\frac{100}{0,07}$ m ℓ \checkmark M = 1 428,57 m ℓ	1A total area of panels 1SF substitution in formula 1S simplification 1C conversion to m ² 1M Method
	∴ 0,278423 m² need = 1428,571429 × 0,278423 = 397,7471429 mℓ ≈ 397,75 mℓ ✓ CA Two coats = 2 × 397, 75mℓ = 795, 49 mℓ ✓ CA Number of spray cans = $\frac{795,49 \text{m}\ell}{250 \text{m}\ell}$ = 3,18184 ≈ 4 ✓ CA	1CA paint needed for 1 coat 1CA paint needed for 2 coats 1CA rounding up

OR	OR
$TSA = P \times H + K$	1A total area of
✓A ✓C ✓SF	panels
$= 8 \times 0.110 \text{ m} \times 0.250 \text{m} + 0.058 423 \text{ m}^2$	1C conversion to
0 × 0,110 m × 0,220 m × 0,020 123 m	1000000000000000000000000000000000000
$= 0.22 \text{ m}^2 + 0.058 423 \text{ m}^2$	1SF substitution in
$= 0.278 423 \text{ m}^2 \sqrt{\text{S}}$	formula
- 0,270 1 23 m	1S simplification
For 0,07 m ² one needs 100mℓ of paint	13 simplification
	1M method
$\therefore 1 \text{ m}^2 \text{ one need } \frac{100}{2.27} \text{ m}\ell \checkmark M$	TW method
0,07	
= 1 428,57 mℓ	
$\therefore 0.278423 \text{ m}^2 \text{ need} = 1428,571429 \times 0.278423$	
= 397,7471429 m ²	
≈ 397,75 mℓ ✓CA	
Two coats = $2 \times 397,75 \text{ m}\ell$	1CA paint needed
	for 1 coat
$=795,49 \mathrm{m}\ell$ \checkmark CA	1CA paint needed
705.40 //	for 2 coats
Number of spray cans = $\frac{795,49 \mathrm{m}\ell}{250,49} = 3,1819$	
$250\mathrm{m}\ell$	
≈4 ✓CA	1CA rounding up
OR	OR
$TSA = P \times H + K$	021
√A √C √SF	1A total area of
$= 8 \times 0.110 \text{ m} \times 0.250 \text{m} + 0.058 423 \text{ m}^2$	panels
	1C conversion to
$= 0.22 \text{ m}^2 + 0.058 423 \text{ m}^2$	$\frac{1}{m^2}$
$= 0.278 423 \text{ m}^2 \checkmark \text{S}$	1SF substitution in
√A	formula
1 spray can covers = $0.07 \times 2.5 \text{m}^2$	1S simplifying
$= 0.175 \checkmark CA$	1A spray rate per
,,,,,, OII	
0.0704000	can
0.778/1873	1CA simplification
Number of cans = $\frac{0.2784823}{0.177} \times 2$ \sqrt{M}	
0,175	1M for two coats
Number of cans = $\frac{0.2784823}{0.175} \times 2 \checkmark M$ $= 3.1819$ $\approx 4 \checkmark CA$	1M for two coats 1CA rounding up

Ques	Solution	Explanation	
4.3.1	OR	OR	
cont.	$TSA = P \times H + K$	1A total area of panels	
	$A \times 110 \text{mm} \times 250 \text{mm} + 0.058423 \text{m}^2$	1SF substitution in formula	
	$= 8 \times 0.11 \text{m} \times 0.25 \text{m} + 0.05423 \text{m}^2 \text{C}$	1C conversion to m ²	
	$= 0.22 \text{ m}^2 + 0.058423 \text{m}^2$		
	$= 0.278423 \text{m}^2 \checkmark \text{S}$	1S simplification	
	_	15 simplification	
	$100 \text{ m}l \text{ covers } 0.07 \text{ m}^2$		
	∴ 0.28m^2 will need = $\frac{100 \times 0.278423}{0.07}$ mℓ \checkmark M	1M method	
	0,07		
	$=397,7471429m\ell$		
	= 397,75mℓ ✓CA	1CA paint needed for 1 coat	
	Two coats = 2×397 , $75m\ell = 795$, $49 m\ell \checkmark CA$	1CA paint needed for 2 coats	
		Terr paint needed for 2 coats	
	Number of spray cans = $\frac{795,49 \text{m}\ell}{250 \text{m}\ell}$ = 3,181 \approx 4 \checkmark CA	1CA rounding up	
	250 mℓ	(8)	
1.3.2	./MA		L2
	Height = $240 \text{ mm} \times 164$	1MA correct height	
	$= 39360 \text{ mm}$ $\checkmark \text{CA}$	1CA correct answer in mm	
	= 39, 36 meters	1C conversion	
	∴ The height of the actual tower is approximately 39, 4m		
	OR	OP	
	OR	OR	
	✓MA ✓C	1MA correct height	
	Height = $25 \text{cm} - 1 \text{cm} = 24 \text{ cm} = 0.24 \text{ m}$	1C conversion	
	Actual height = $0.24 \times 164 = 39.36 \text{m}_{\checkmark \text{CA}}$	1CA correct answer in m NPR	
		(3)	
1.4	.		L2
тт	1. Mount the vertical poles to the kick base and	1A for the vertical poles	
	fasten with the screws. ✓A	1A for the screws	
	✓ A2. Slide the three glass panels into the vertical poles.	1A glass panels	
	3. Place the top aluminium frame on top and fasten	1A for the top frame	
	with screws. ✓A	1A Screws	
	✓A	1A interior standards	
	4. Screw the interior standards onto the aluminium	1 A hunghrate	
	framing and insert the brackets. \checkmark_A	1A brackets	
		[Single word answers not	
		acceptable.] (7)	
		[45]	
		[45]	

TOTAL: 150