



basic education

Department:
Basic Education
REPUBLIC OF SOUTH AFRICA

NATIONAL SENIOR CERTIFICATE

GRADE 12

MATHEMATICAL LITERACY P2

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MEMORANDUM

MARKS: 150

Symbol	Explanation
M	Method
M/A	Method with accuracy
CA	Consistent accuracy
A	Accuracy
C	Conversion
S	Simplification
RT/RG	Reading from a table/Reading from a graph
SF	Correct substitution in a formula
O	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.

QUESTION 1 [38 MARKS]			
Ques	Solution	Explanation	
1.1.1	$\checkmark A$ The data is discrete , because the violent incidents is counted/whole numbers/integral values /categorised $\checkmark O$	1A correct type 1O reason (2)	L4
* 1.1.2	Total number of incidents involving boys $= 13 + 12 + 18 + 11 + 10 + 16$ $= 80 \checkmark S$ Total number of incidents involving girls $= 7 + 3 + 4 + 7 + 5 + 19 \checkmark RG$ $= 45 \checkmark CA$ Difference = $80 - 45$ $= 35 \checkmark CA$ <p style="text-align: center;">OR</p> Total for boys and girls $= 20 + 15 + 22 + 18 + 15 + 35$ $= 125 \checkmark S$ Total for boys $= 13 + 12 + 18 + 11 + 10 + 16$ $= 80 \checkmark S$ Number of girls = $125 - 80$ $= 45 \checkmark CA$ Difference = $80 - 45$ $= 35 \checkmark CA$ <p style="text-align: center;">OR</p> The total of the differences between boys and girls $\checkmark A \quad \checkmark A \quad \checkmark A$ $= 6 + 9 + 14 + 4 + 5 - 3$ $= 35 \checkmark CA$	1S total number of boys 1RG reading from graph 1CA total number of girls 1CA difference <p style="text-align: center;">OR</p> 1S Total number of boys and girls 1S Total number of boys 1CA number of girls 1CA Difference <p style="text-align: center;">OR</p> 2A Positive differences 1A for negative 3 1CA the differences Max 2 marks if part data used Answer only full marks (4)	L3

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

*** 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	$B = \frac{15+16}{2} = 15,5 \checkmark CA$ $C = \frac{16+17}{2} = 16,5 \checkmark CA$ $D = 17 \checkmark CA$	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 Answer Only full marks (5)	L2
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. $\checkmark\checkmark J$ <p style="text-align: center;">OR</p> Social: $\checkmark\checkmark J$ Need recognition / low self- esteem / identity crisis. <p style="text-align: center;">OR</p> Economic: To gain favours from others. $\checkmark\checkmark J$ <p style="text-align: center;">OR</p> Educational: They are frustrated by their lack of progress. $\checkmark\checkmark J$ <p style="text-align: center;">OR</p> Environmental factors/ emotional factors $\checkmark\checkmark J$ <p style="text-align: center;">OR $\checkmark\checkmark J$</p> Contextual factors/ No parental control/Peer pressure <p style="text-align: center;">OR</p> $\checkmark\checkmark J$ Violent community / child headed family/gang related	2J reason (2)	L4

Ques	Solution	Explanation	
1.3.1	<p>Total cost in Rand</p> $= 300 \text{ for the first 15 passengers} + 50 \times \text{the number of persons more than 15}$ <p style="text-align: center;">OR</p> <p>Total cost (in Rand)</p> $= 300 + (\text{the number of persons} - 15) \times 50$ <p style="text-align: center;">OR</p> <p>Total cost (in Rand)</p> $= 300 + (n - 15 \text{ persons}) \times 50$ <p>Where n is the number of persons more than 15</p> <p style="text-align: center;">OR</p> <p>Total cost (in Rand)</p> $= (\text{number of persons}) \times 50 - 450$	<p>1A constant cost 1A 15 persons 1A number of persons more than 15 1A multiply by the rate R50</p> <p style="text-align: center;">OR</p> <p>1A constant cost 1A using 15 persons 1A using a variable with explanation 1A multiply by the rate R50</p> <p style="text-align: center;">OR</p> <p>1A constant cost 1A using 15 persons 1A using a variable with explanation 1A multiply by the rate R50</p> <p style="text-align: center;">OR</p> <p>2A – 450 1A number of persons 1A multiply by the rate R50</p> <p style="text-align: right;">(4)</p>	
1.3.2 (a)	<p style="text-align: center;">\checkmarkSF</p> $900 = 300 + (n - 15 \text{ persons}) \times 50$ $(n - 15 \text{ persons}) \times 50 = 600$ $n - 15 \text{ persons} = 12$ $n = 27 \checkmark$ <p style="text-align: center;">OR</p> <p>27 $\checkmark\checkmark$RT</p>	<p>1SF Substituting in formula</p> <p>1A Maximum number</p> <p style="text-align: center;">OR</p> <p>2 RT Max number of passengers [Both 25 and 27 one mark and 25 only, no marks]</p> <p style="text-align: right;">(2)</p>	L3

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

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

Ques	Solution	Explanation	
2.1.2	<p>Number of stops and the length of stopping while the engine is running. ✓ O</p> <p style="text-align: center;">OR</p> <p>The driving pattern of the driver for example fast acceleration and hard breaking. ✓ O</p> <p style="text-align: center;">OR</p> <p style="text-align: right;">✓ O</p> <p>Driving at high speeds with open windows</p> <p style="text-align: center;">OR</p> <p>Use of the air conditioner. ✓ O</p> <p style="text-align: center;">OR</p> <p>The condition of the car with relation to tyre pressure, load, etc. ✓ O</p> <p style="text-align: center;">OR ✓ O</p> <p>Condition of the road surface, and the slope of the road.</p> <p style="text-align: center;">✓ O OR</p> <p>Mechanical fault / condition / Electronic damage</p> <p style="text-align: center;">OR</p> <p>Load and number of passengers in vehicle ✓ O</p> <p style="text-align: center;">OR</p> <p>Traffic congestion ✓ O</p>	<p>10 any FIRST correct factor</p> <p>10 for any SECOND correct factor</p> <p style="text-align: right;">(2)</p>	L4
2.1.3	<p>Sonic Monthly petrol cost (in Rand)</p> $= \frac{35000}{12} \times 14,04 \times \frac{6,7}{100} = 2\,743,65 \quad \checkmark CA$ <p>Total running cost(in Rand) = 2 743,65 + 2 657,00 = 5 400,65 ✓CA</p> <p>Aveo Monthly petrol cost (in Rand)</p> $= \frac{35000}{12} \times 14,04 \times \frac{7,3}{100} = 2\,989,35 \quad \checkmark CA$ <p>Total running cost(in Rand) = 2 989,35 + 1 942,00 = 4 931,35 ✓CA</p> <p>∴ Aveo 1.6 is more economical. ✓ O</p> <p style="text-align: center;">OR</p>	<p>1M dividing by 12 1A multiply petrol price 1MA multiply by consumption rate 1 CA petrol cost Sonic</p> <p>1CA total running cost for the Sonic</p> <p>1 CA petrol cost Aveo</p> <p>1CA total running cost for the Aveo</p> <p>10 conclusion</p> <p>[3 out of 8 marks if petrol cost ignored]</p>	

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

QUESTION 3 [34 MARKS]			
Ques	Solution	Explanation	
3.1.1	<p>Note: Afrikaans scripts to be marked differently</p> <p>Annual salary = R 20 416,67 × 12 = R 245 000,04 ✓ MA</p> <p>Pension = R 245 000,04 × 6 % = R 14 700 ,00 ✓ CA</p> <p>Taxable amount without bonus = R 245 000,04 – R 14 700,00 = R 230 300, 04 ✓ CA</p> <p>Taxable annual income ✓ CA = R230 300,04 + R20 416,67 = R250 716,71</p> <p style="text-align: center;">OR</p> <p>Monthly pension = R20 416,67 × 6% = R1 225 ✓ MA Monthly taxable salary = R20 416,67 – R1 225 = R19 191,67 ✓ CA</p> <p>Annual taxable income = R19 191,67 × 12 + R20 416,67 ✓ MA = R250 716,71 ✓ CA</p> <p style="text-align: center;">OR</p> <p>Annual taxable income = (13 × R 20 416,67) – (12 × R 20 416,67 × 6%) ✓ MA ✓ MA = R 265 416,71 – R14 700 ✓ CA = R250 716,71 ✓ CA</p>	<p>1MA annual salary</p> <p>1CA pension</p> <p>1CA subtracting the pension</p> <p>1 CA taxable annual income</p> <p style="text-align: center;">OR</p> <p>1MA pension</p> <p>1CA subtracting the pension</p> <p>1MA annual salary</p> <p>1 CA taxable annual income</p> <p style="text-align: center;">OR</p> <p>1MA multiplying by 13</p> <p>1MA calculating the pension</p> <p>1CA subtracting the pension</p> <p>1 CA taxable annual income</p> <p>[Pension omitted lose 2 marks] [Bonus omitted lose 1 mark] (4)</p>	L3
3.1.2	<p>Rate of tax = R 29 808 + 25% × (R250 716,71 – R 165 600) ✓ A ✓ SF = R 29 808 + R 85 116,71 × 25% = R 29 808 + R 21 279,18 = R 51 087,18 ✓ CA ✓ S</p> <p>Annual tax after rebate = R 51 087,18 – R 12 080,00 = R 39 007,18 ✓ CA</p>	<p>NB: Amount from Q3.1.1</p> <p>1A for correct tax bracket</p> <p>1SF for substituting into the formula</p> <p>1S simplification</p> <p>1CA for tax amount</p> <p>1CA for tax amount after rebate</p> <p>NPR (5)</p>	L3

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

Ques	Solution	Explanation	
3.2.4	Difference = R48 billion - R47,9 billion = R 0,1 billion. In reality the difference is not 0,1 <input checked="" type="checkbox"/> <input type="checkbox"/> but an amount of R100 000 000 (one hundred million) <input checked="" type="checkbox"/> <input type="checkbox"/> Example: R 47,9 billion rounded R48 billion implies that there will be an over allocation of R100 million <input checked="" type="checkbox"/> <input type="checkbox"/>	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 (3)	L4
3.3.1	A visual representation is more understandable (make sense of) for the general public than a table with values only. <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <p style="text-align: center;">OR</p> A visual representation is easier to read than text or table consisting of values. <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <p style="text-align: center;">OR</p> 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. <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>	2O reason (2)	L4
3.3.2	<input checked="" type="checkbox"/> <input type="checkbox"/> A bar graph (multiple/compound) is more appropriate to display this data The bar graph will allow for a much more-in-depth analysis of the <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> trends in the collection of tax between the different categories over a period of time. <p style="text-align: center;">OR</p> Line or broken line graph <input checked="" type="checkbox"/> <input type="checkbox"/> 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. <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>	1O identifying the type of graph 2O for explaining the advantage of a bar graph <p style="text-align: center;">OR</p> 1O identifying the type of graph 2O for explaining the advantage of a broken line graph (3)	L4
		[34]	

QUESTION 4 [45 marks]			
Ques	Solution	Explanation	
4.1.1(a)	$\checkmark A \checkmark A \checkmark CA$ 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)	$\begin{aligned} \text{Total income in OR} &= (72 \times 78) + (388 \times 48) + (83 \times 42) \\ &+ (81 \times 28) + (112 \times 15) + (82 \times 10) \\ &= 5\,616 + 18\,624 + 3\,486 + 2\,268 + 1\,680 + 820 \\ &= 32\,494 \end{aligned}$ $\checkmark CA$	* 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)	$\begin{aligned} \text{Cost for 1 zone B ticket} &= 48 \text{ OR } \checkmark A \\ &= R27,2183 \times 48 \\ &= R 1\,306,48 \checkmark C \end{aligned}$ <p>Cost in Euro for one flight ticket = 492,29</p> $\begin{aligned} \text{Cost in OR for one flight ticket} &= \frac{492,29}{1,87126} \checkmark M \\ &= 263,08 \end{aligned}$ $\begin{aligned} \text{Cost in Rand for one flight ticket} &= 263,08 \times R 27,2183 \checkmark M \\ &= 7\,160,59 \checkmark CA \end{aligned}$ $\begin{aligned} \text{Total cost per person} &= R 1\,306,48 + R 7\,160,59 \\ &= R 8\,467,07 \checkmark CA \end{aligned}$ $\begin{aligned} \text{Total cost for two} &= R 8\,467,07 \times 2 \\ &= R 16\,934,14 \checkmark CA \end{aligned}$ <p style="text-align: center;">OR</p>	1A cost of ticket 1C convert OR to Rand 1M convert Euro to OR 1M convert OR to Rand 1CA cost of one ticket 1CA calculating total cost per person 1CA calculating total cost for two people <p style="text-align: center;">OR</p>	L4

Ques	Solution	Explanation	
<p>4.1.2(a) (cont.)</p>	<p>Cost for 2 zone B tickets = 2×48 OR = 96 OR ^{✓A} = R27, 2183 × 96 = R2 612, 96 ✓C</p> <p>Cost for 2 flight tickets = $2 \times \text{€}92, 29$ = €84, 58 ✓A</p> <p>€84, 58 = $\frac{R27,2183 \times 984,58}{1,87126}$ ✓✓M = R14 321, 15 ✓CA</p> <p>Total cost = R2 612, 96 + R14 321, 15 = R16 934, 11 ✓CA</p> <p style="text-align: center;">OR</p> <p>Cost for Zone B tickets: 2×48 OR = 96 OR ✓A</p> <p>Flight tickets in OR = $\frac{2 \times 492,29}{1,87126}$ ✓C = 526,1588448 ✓CA</p> <p>Total cost: 526,1588448 + 96 = 622,1588448 ✓CA</p> <p>Cost in Rand = $622,1588448 \times 27,2183$ ✓C = 16 934,11 ✓CA</p>	<p>1A cost for one ticket 1C conversion</p> <p>1A 2 flight tickets</p> <p>2M convert Euro to rand 1CA cost of 2 tickets in rand</p> <p>1CA total cost</p> <p style="text-align: center;">OR</p> <p>1A cost for one ticket 1A cost of 2 tickets 1C conversion to OR</p> <p>1CA ticket price</p> <p>1CA total cost</p> <p>1C convert OR to Rand 1CA cost in rand</p> <p style="text-align: right;">(7)</p>	
<p>4.1.2(b)</p>	<p>Time leaving Johannesburg + flight time = 20h30 + 11h25 = 31h55 ✓A</p> <p style="text-align: right;">✓CA</p> <p>Time in South Africa when they arrived: 07:55 or 7.55 am or five minutes to eight in the morning</p>	<p>1A adding</p> <p>1CA correct time [If written as 07h55 one mark only]</p> <p>Answer only full marks</p> <p style="text-align: right;">(2)</p>	<p>L2</p>
<p>4.2.1</p>	<p>South westerly (SW) ✓✓A</p> <p style="text-align: center;">OR</p> <p>South, south westerly (SSW)</p>	<p>2A correct direction</p> <p style="text-align: right;">(2)</p>	<p>L2</p>

Ques	Solution	Explanation	
4.2.2	<p>This chart only shows distances from Muscat. ✓✓O OR ✓✓O They don't lie in the same direction. ✓✓O OR This is not a map / strip chart.</p>	<p>2O opinion (2)</p>	L4
4.2.3	<p>Muscat to Sydney $\approx 3\,349\text{km} \times 3,5$ ✓RT ✓M $\approx 10\,716,8$ to $11\,721,5\text{km}$ ✓CA</p>	<p>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] (3)</p>	L2
4.3.1	<p>TSA = $P \times H + K$ $= 8 \times 110\text{ mm} \times 250\text{ mm} + 58\,423\text{ mm}^2$ ✓A ✓SF $= 220\,000\text{ mm}^2 + 58\,423\text{ mm}^2$ $= 278\,423\text{ mm}^2$ ✓S $= 0,278\,423\text{ m}^2$ ✓C For $0,07\text{ m}^2$ one needs 100ml of paint $\therefore 1\text{ m}^2$ one need $\frac{100}{0,07}\text{ ml}$ ✓M $= 1\,428,57\text{ ml}$ $\therefore 0,278423\text{ m}^2$ need $= 1428,571429 \times 0,278423$ $= 397,7471429\text{ ml}$ $\approx 397,75\text{ ml}$ ✓CA Two coats $= 2 \times 397,75\text{ ml}$ $= 795,49\text{ ml}$ ✓CA Number of spray cans $= \frac{795,49\text{ ml}}{250\text{ ml}}$ $= 3,18184$ ≈ 4 ✓CA</p>	<p>1A total area of panels 1SF substitution in formula 1S simplification 1C conversion to m^2 1M Method 1CA paint needed for 1 coat 1CA paint needed for 2 coats 1CA rounding up</p>	L4

<p>4.3.1 Cont.</p>	<p style="text-align: center;">OR</p> <p>TSA = P × H + K $\checkmark A \quad \checkmark C \quad \checkmark SF$ $= 8 \times 0,110 \text{ m} \times 0,250 \text{ m} + 0,058 \ 423 \text{ m}^2$ $= 0,22 \text{ m}^2 + 0,058 \ 423 \text{ m}^2$ $= 0,278 \ 423 \text{ m}^2 \checkmark S$</p> <p>For 0,07 m² one needs 100ml of paint $\therefore 1 \text{ m}^2 \text{ one need } \frac{100}{0,07} \text{ ml} \checkmark M$ $= 1 \ 428,57 \text{ ml}$</p> <p>$\therefore 0,278423 \text{ m}^2 \text{ need} = 1428,571429 \times 0,278423$ $= 397,7471429 \text{ ml}$ $\approx 397,75 \text{ ml} \quad \checkmark CA$</p> <p>Two coats = 2 × 397,75ml $= 795,49 \text{ ml} \quad \checkmark CA$</p> <p>Number of spray cans = $\frac{795,49 \text{ ml}}{250 \text{ ml}} = 3,1819$ $\approx 4 \quad \checkmark CA$</p> <p style="text-align: center;">OR</p> <p>TSA = P × H + K $\checkmark A \quad \checkmark C \quad \checkmark SF$ $= 8 \times 0,110 \text{ m} \times 0,250 \text{ m} + 0,058 \ 423 \text{ m}^2$ $= 0,22 \text{ m}^2 + 0,058 \ 423 \text{ m}^2$ $= 0,278 \ 423 \text{ m}^2 \checkmark S$</p> <p>1 spray can covers = $0,07 \times 2,5 \text{ m}^2 \checkmark A$ $= 0,175 \checkmark CA$</p> <p>Number of cans = $\frac{0,2784823}{0,175} \times 2 \checkmark M$ $= 3,1819$ $\approx 4 \quad \checkmark CA$</p>	<p style="text-align: center;">OR</p> <p>1A total area of panels 1C conversion to m² 1SF substitution in formula 1S simplification</p> <p>1M method</p> <p>1CA paint needed for 1 coat 1CA paint needed for 2 coats</p> <p>1CA rounding up</p> <p style="text-align: center;">OR</p> <p>1A total area of panels 1C conversion to m² 1SF substitution in formula 1S simplifying 1A spray rate per can 1CA simplification 1M for two coats</p> <p>1CA rounding up</p>	<p>L4</p>
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Ques	Solution	Explanation	
4.3.1 cont.	<p style="text-align: center;">OR</p> $\begin{aligned} \text{TSA} &= P \times H + K \\ &= 8 \times 110\text{mm} \times 250\text{mm} + 0,058423\text{m}^2 \\ &= 8 \times 0,11\text{m} \times 0,25\text{m} + 0,05423\text{m}^2 \\ &= 0,22\text{m}^2 + 0,058423\text{m}^2 \\ &= 0,278423\text{m}^2 \end{aligned}$ <p>100 ml covers 0,07 m² $\therefore 0,28\text{m}^2$ will need = $\frac{100 \times 0,278423}{0,07}$ ml = 397,7471429ml = 397,75ml Two coats = $2 \times 397,75\text{ml} = 795,49\text{ml}$ Number of spray cans = $\frac{795,49\text{ml}}{250\text{ml}} = 3,181 \approx 4$</p>	<p style="text-align: center;">OR</p> <p>1A total area of panels 1SF substitution in formula 1C conversion to m²</p> <p>1S simplification</p> <p>1M method</p> <p>1CA paint needed for 1 coat</p> <p>1CA paint needed for 2 coats</p> <p>1CA rounding up</p> <p style="text-align: right;">(8)</p>	
4.3.2	<p style="text-align: center;">OR</p> $\begin{aligned} \text{Height} &= 240 \text{ mm} \times 164 \\ &= 39\,360 \text{ mm} \\ &= 39,36 \text{ meters} \end{aligned}$ <p>\therefore The height of the actual tower is approximately 39,4m</p> <p style="text-align: center;">OR</p> $\text{Height} = 25\text{cm} - 1\text{cm} = 24\text{ cm} = 0,24\text{ m}$ <p>Actual height = $0,24 \times 164 = 39,36\text{ m}$</p>	<p>1MA correct height 1CA correct answer in mm 1C conversion</p> <p style="text-align: center;">OR</p> <p>1MA correct height 1C conversion 1CA correct answer in m NPR</p> <p style="text-align: right;">(3)</p>	L2
4.4	<ol style="list-style-type: none"> 1. Mount the vertical poles to the kick base and fasten with the screws. 2. Slide the three glass panels into the vertical poles. 3. Place the top aluminium frame on top and fasten with screws. 4. Screw the interior standards onto the aluminium framing and insert the brackets. 	<p>1A for the vertical poles 1A for the screws</p> <p>1A glass panels</p> <p>1A for the top frame 1A Screws 1A interior standards</p> <p>1A brackets [Single word answers not acceptable.]</p> <p style="text-align: right;">(7)</p>	L2
		[45]	

TOTAL: 150