



# basic education

Department:  
Basic Education  
**REPUBLIC OF SOUTH AFRICA**

## NATIONAL SENIOR CERTIFICATE

GRADE 12

**MATHEMATICAL LITERACY P2**

**NOVEMBER 2012**

**FINAL 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
J	Justification

PLEASE NOTE:

1. If a candidate deletes a solution to a question without providing another solution, then the deleted solution must be marked.
2. If a candidate provides more than one solution to a question, then only the first solution must be marked and a line drawn through any other solutions to the question.

**This memorandum consists of 19 pages.**

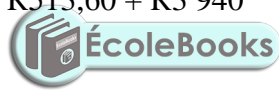
QUESTION 1 [26 MARKS]			
Ques	Solution	Explanation	AS
1.1.1	South-westerly ✓✓ A  (accept abbreviations for compass directions)	2A correct direction 1A Southerly 1A Westerly  (2)	12.3.4 L3
1.1.2	N5 <b>OR</b> N17 ✓✓ A	2A correct national road N17 accepted due to unclear provincial boundaries  (2)	12.3.4 L3
1.1.3	<p><b>One possible route:</b> ✓ A From Bloemfontein turn onto the N1 and travel south until Beaufort West. Then turn onto the N12 until George. ✓ A</p> <p><b>A second possible route:</b> ✓ A From Bloemfontein turn onto the N1 and travel south until the intersection with the N9. Then follow the N9 until George.</p> <p><b>A third possible route:</b> ✓ A From Bloemfontein turn onto the N1 and travel south until the intersection with N10. Then follow the N10 in a south easterly direction until the N2. Then follow the N2 in a westerly direction until George. ✓ A</p> <p><b>A fourth possible route:</b> ✓ A From Bloemfontein turn onto the N1 and later turn onto the N6 to East London. Then follow the N2 in a westerly direction until George. ✓ A</p> <p><b>A fifth possible route:</b> ✓ A From Bloemfontein turn north onto the N1, turn right onto N5, take a right onto N3 pass Pietermaritzburg to Durban. Then at Durban turn south onto the N2, pass East London, Port Elizabeth and continue until George. ✓ A</p> <p><b>NOTE:</b> Follow the learners route. But learners cannot go back to Kimberley (No N8 route).</p>	<p>1A N1</p> <p>1A N12 and Beaufort West</p> <p><b>OR</b> 1A N1 1A N9</p> <p><b>OR</b> 1A N1</p> <p>1A N10, N2</p> <p><b>OR</b> 1A (N1) N6 and East London, 1A N2</p> <p><b>OR</b> 1A N1; N5 and  1A N3 Durban; N2</p> <p>(4)</p>	12.3.4 L2



Ques	Solution	Explanation	AS
	<p><b>OR</b></p> <p>Total cost (in rand)</p> $= (60 \times x + 90 \times y + 120 \times z) \times 4 \quad \checkmark S \quad \checkmark S$ $= (60 \times 5 + 90 \times 4 + 120 \times 5) \times 4$ $= 1\,260 \times 4 \quad \checkmark CA$ $= 5\,040 \quad \checkmark CA$ <p><b>OR</b></p> <p><b>(using equation from 1.2.2 (a) working with daily cost)</b></p> <p>Total cost (in rand) = <math>1\,260 \times 4 \quad \checkmark S \quad \checkmark S</math></p> $= 5\,040 \quad \checkmark CA \quad \checkmark CA$ <p><b>OR (calculating total daily costs)</b></p> <p>Cost of meals:</p> <p>Saturday = <math>R120 \times 4 = R480</math></p> <p>Sunday = <math>(R60 + R90 + R120) \times 4 = R1\,080</math></p> <p>Monday = <math>(R60 + R120) \times 4 = R720 \quad \checkmark S</math></p> <p>Tuesday = <math>(R90 + R120) \times 4 = R840</math></p> <p>Wednesday = <math>(R60 + R90 + R120) \times 4 = R1\,080</math></p> <p>Thursday = <math>(R60 + R90) \times 4 = R600 \quad \checkmark S</math></p> <p>Friday = <math>R60 \times 4 = R240</math></p> <p>Total cost (in rand)</p> $= 480 + 1\,080 + 720 + 840 + 1\,080 + 600 + 240 \quad \checkmark CA$ $= 5\,040 \quad \checkmark CA$ <p><b>OR (calculating total cost of types of meals)</b></p> <p>Total cost of breakfast = <math>R60 \times 5 \times 4 = R1\,200 \quad \checkmark S</math></p> <p>Total cost of lunches = <math>R90 \times 4 \times 4 = R1\,440 \quad \checkmark S</math></p> <p>Total cost of suppers = <math>R120 \times 5 \times 4 = R2\,400</math></p> <p>Total cost (in rand) = <math>1\,200 + 1\,440 + 2\,400 \quad \checkmark CA</math></p> $= 5\,040 \quad \checkmark CA$	<p>1S correct subst. no. of people</p> <p>1S correct subst. no. of meals</p> <p>1CA simplification</p> <p>1CA total</p> <p>2S substitution of no. of people</p> <p>2CA total</p> <p>2S correct subst. daily cost</p> <p>1CA simplification</p> <p>1CA total</p> <p>2S correct subst. meal cost</p> <p>1CA simplification</p> <p>1CA total</p>	

(4)

Ques	Solution	Explanation	AS
1.2.3	<p>Cost for nature walk = <math>(R120 \times 2) + (R100 \times 2)</math> ✓M/A                      = R440 ✓CA</p> <p>Cost for game park = <math>R200 \times 4</math>                      = R800 ✓A</p> <p>Cost for boat cruise = <math>(R200 \times 2) + (R150 \times 2)</math> ✓M/A                      = R700 ✓CA</p> <p>Total entertainment cost = <math>R440 + R800 + R700 + R2\ 000</math>                      = R3 940 ✓CA</p> <p><b>Six day option:</b>                      Total cost for the trip (accom. + meals + long dist. + local + ent)  <math>= R6\ 300 + R5\ 040 + R1\ 602,86 + R513,60 + R3\ 940</math> ✓M/A                      = R17 396,46 ✓CA</p> <p><b>OR</b>  <b>Seven day option:</b>                      Total cost for the trip (accom. + meals + long dist. + local + ent)  <math>= R7\ 350 + R5\ 040 + R1\ 602,86 + R513,60 + R3\ 940</math> ✓M/A                      = R18 446,46 ✓CA</p> <p>∴ Mr Nel's estimate was <b>CORRECT</b> ✓J</p>	<p>1M/A expression for cost                      1CA simplification</p> <p>1A cost for game park                      1M/A expression for cost                      1CA simplification</p> <p>1CA total cost</p> <p>1M/A adding all costs                      1CA total cost</p> <p>1M/A adding all costs                      1CA total cost</p> <p>1J verification</p>	<p>12.1.3                      L4</p> <p>(9)</p>
			<b>[26]</b>



QUESTION 2 [34 MARKS]				
Ques	Solution	Explanation	AS	
2.1.1(a)	$A - 15 = 37 \checkmark M$ $A = 52 \checkmark A$	$OR$ $A = 37 + 15 \checkmark M$ $= 52 \checkmark A$	1M concept of range 1A simplification Correct answer only– full marks (2)	12.4.3 L3
2.1.1(b)	The mean for 16 customers is 34 minutes $\therefore$ total waiting time = $16 \times 34 = 544 \checkmark M$ Total of known waiting times $= 30 + 15 + 45 + 36 + 52 + 40 + 34 + 42 + 26 + 32 + 38 + 35 + 41 + 28$ $= 494 \checkmark M$ Difference is $544 - 494 = 50 \checkmark S$ $\therefore$ 2 customers have a total waiting time of 50 minutes $\therefore B = \frac{50}{2} = 25 \checkmark CA$ <b>OR</b> Mean $= \frac{30 + 15 + 45 + 36 + 52 + 40 + 34 + B + B + 42 + 26 + 32 + 38 + 35 + 41 + 28}{16} \checkmark M$ $= 34$ $\frac{494 + 2B}{16} = 34$ $2B = (34 \times 16) - 494 \checkmark S$ $= 50$ $\therefore B = 25 \checkmark CA$	<b>Refer to value of A in 2.1.1(a)</b> 1M total waiting time 1M total of known times 1S difference of the totals 1CA value of B <b>OR</b> 1M adding all the values 1M dividing by 16 1S simplification 1CA value of B Correct answer only - full marks (4)	12.4.3 L3	
2.1.1 (c)	Waiting times are: $\checkmark M/A$ 15; <del>25</del> ; <del>25</del> ; 26; 28; 30; 32; 34; 35; 36; 38; 40; 41; 42; 45; <del>52</del> Median = $\frac{34 + 35}{2} \checkmark M$ $= 34,5 \checkmark CA$	(Using A and B values calculated above) 1M/A arranging 16 terms in ascending order 1M median concept (even number of terms) 1CA simplification (3)	12.4.3 L3	

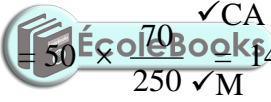
Ques	Solution	Explanation	AS
2.1.2	4 ✓✓CA	2CA correct number Note if B is greater than 27 answer can be 2 (2)	
2.1.3	<p>The mean, median and range for 7 February are less than those for 14 February. ✓O</p> <p>This means that his customers had to wait for a shorter time on 7 February than on 14 February. ✓O</p> <p><b>Any two of the reasons below:</b></p> <ul style="list-style-type: none"> <li>• It could be that more people came to eat at his eating place on 14 February, because of Valentine's Day. ✓J</li> <li>• He had less staff on the 14<sup>th</sup>, ✓J</li> <li>• He had the same number of staff but did not anticipate the increased number of customers. ✓J</li> <li>• His equipment was faulty on the 14<sup>th</sup> – people had to wait longer to be served ✓J</li> <li>• The electricity was off for a while ✓J</li> </ul> <p style="text-align: center;"><b>OR</b></p> <p>The mean, median and range for 14 February are more than those for 7 February. ✓O</p> <p>This means that his customers had to wait for a longer time on 14 February than on 7 February. ✓O</p> <p><b>Any two of the reasons below:</b></p> <ul style="list-style-type: none"> <li>• It could be that less people came to eat at his eating place on 7 February, because of Valentine's Day. ✓J</li> <li>• He had more staff on the 7<sup>th</sup>, ✓J</li> <li>• He had the same number of staff but did not anticipate the difference in number of customers. ✓J</li> <li>• His equipment was working well on the 7<sup>th</sup> – people did not wait long to be served ✓J</li> <li>• No electricity problems on the 7<sup>th</sup> ✓J</li> </ul> <p style="text-align: center;"><b>OR</b></p> <p>Any other valid, well thought out reason will be accepted</p>	<p>2O comparing the measures</p> <p>Accept a comparison table of correct values</p> <p>2J conclusion</p> <p style="text-align: right;">(4)</p>	<p>12.4.4</p> <p>L4</p>

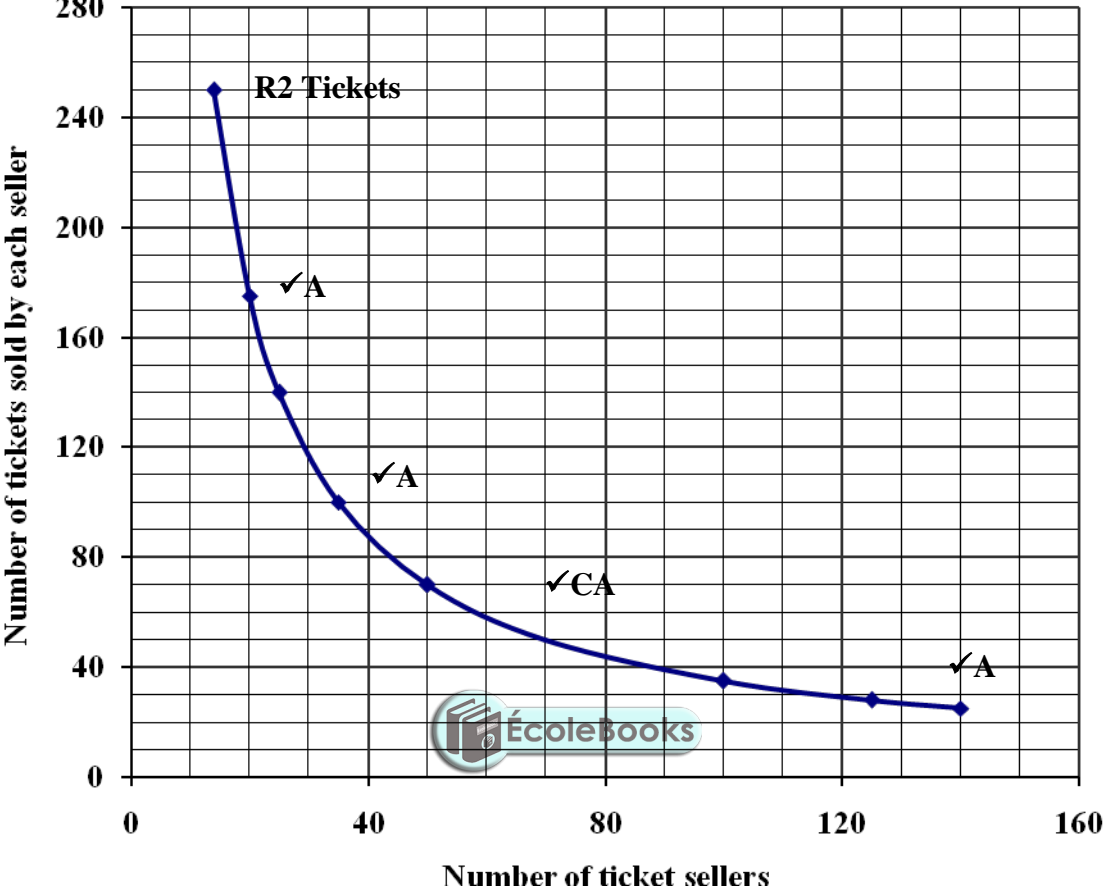
Ques	Solution	Explanation	AS
2.2.1	<p>Percentage ordering chicken = 15% ✓A</p> <p>If 20% of the total = 40  <math>\therefore 1\% \text{ of the total} = \frac{40}{20} = 2 \quad \checkmark M</math>  <math>\therefore 15\% \text{ of the total} = 15 \times 2 \quad \checkmark A</math>  <math>= 30 \quad \checkmark CA</math></p> <p><b>OR</b></p> <p><math>20\% : 40 = 15\% : x \quad \checkmark M</math>  <math>x = \frac{15\%}{20\%} \times 40 \quad \checkmark S</math>  <math>= 30 \quad \checkmark CA</math></p> <p><b>OR</b></p> <p>20% of total = 40  <math>\text{Total} = \frac{40}{20\%} \quad \checkmark M</math>  <math>= 200 \quad \checkmark A</math>  <math>\therefore 15\% \text{ of } 200 = 30 \quad \checkmark CA</math></p>	<p>1A percentage ordering chicken</p> <p>1M finding 1%</p> <p>1A multiplying by 15 1CA simplification</p> <p><b>OR</b></p> <p>1M using proportion 1A percentage ordering chicken 1S expression for x 1CA simplification</p> <p><b>OR</b></p> <p>1M finding total no. of customers 1A total number of customers 1A percentage ordering chicken 1CA simplification</p> <p>Correct answer only – full marks</p>	<p>12.1.1 (2) 12.4.4 (2) L2 (2) L3 (2)</p> <p>(4)</p>
2.2.2	<p><math>P(\text{not lamb}) = 1 - 25\% = 75\% \quad \checkmark M \quad \checkmark A \quad \text{OR } 0,75 \quad \text{OR } \frac{3}{4}</math></p> <p><b>OR</b></p> <p>Percentage not ordering lamb = 10 + 15 + 20 + 30 = 75 ✓M  <math>P(\text{not lamb}) = 75\% \quad \checkmark A \quad \text{OR } 0,75 \quad \text{OR } \frac{3}{4}</math></p> <p><b>OR</b></p> <p>Number of people not ordering lamb  <math>= 20 + 30 + 40 + 60 = 150 \quad \checkmark M</math></p> <p><math>P(\text{not lamb}) = \frac{150}{200} = \frac{3}{4} \quad \text{OR } 0,75 \quad \text{OR } 75\% \quad \checkmark A</math></p>	<p>1M subtracting from 100 % 1A simplification</p> <p>1M adding percentages 1A simplification</p> <p>1M adding actual numbers</p> <p>1A simplification</p> <p>Correct answer only - Full marks</p>	<p>(2)</p>





Ques	Solution	Explanation	AS
2.3.1	<p>Two of the following possible reasons:</p> <ul style="list-style-type: none"> <li>• To protect the base of the drum from burning.</li> <li>• To bring the fire closer to the grid.</li> <li>• To spread the coals evenly. (Perfect the braaing)</li> <li>• To use less coal.</li> <li>• To stabilise the drum.</li> <li>• To retain the heat of the burning coals.</li> <li>• The sand can be used to put out the fire.</li> </ul> <p>Accept any <b>two</b> valid reasons.      ✓✓O      ✓✓O</p>	<p>2O reason 2O reason  (4)</p>	
2.3.2	<p>Volume of the braai drum = 108 ℓ  <math>= 108 \times 1\,000\,000 \text{ mm}^3</math>  <math>= 108\,000\,000 \text{ mm}^3</math> ✓C</p> <p>Radius of the braai drum = <math>\frac{572 \text{ mm}}{2} = 286 \text{ mm}</math> ✓A</p> <p>Volume of the braai drum = <math>\frac{1}{2} \times \pi \times (\text{radius})^2 \times (\text{height})</math> ✓M</p> <p><math>108\,000\,000 \text{ mm}^3 = \frac{1}{2} \times 3,14 \times (286 \text{ mm})^2 \times (\text{height})</math> ✓SF</p> <p>Height = <math>\frac{2 \times 108\,000\,000 \text{ mm}^3}{3,14 \times (286 \text{ mm})^2}</math> ✓M</p> <p><math>= 840,99 \text{ mm}</math> ✓CA (840,56... mm using <math>\pi</math>)  <math>\approx 841 \text{ mm}</math></p> <p>But length of grid = 1% more than height of drum</p> <p>1% of 840,99 mm = 8,4099 ✓M</p> <p>∴ Length of grid = <math>840,99 \text{ mm} + 8,4099 = 849,41 \text{ mm}</math> ✓M ✓CA</p> <p style="text-align: center;"><b>OR</b></p> <p>∴ Length of grid = 101% of 840,99 mm = 849,40 mm ✓M ✓CA</p>	<p>1C volume in <math>\text{mm}^3</math></p> <p>1A value of radius</p> <p>1M using <math>\frac{1}{2}</math> cylinder</p> <p>1SF substitution into formula</p> <p>1M Finding expression for height</p> <p>1CA for height only</p> <p>1M calculation percentage</p> <p>1M increasing by 1%</p> <p>1CA length of grid</p> <p style="text-align: center;"><b>OR</b></p> <p>1M increasing by 1%</p> <p>1M calculation percentage</p> <p>1CA length of grid</p> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 10px auto;"> <p><b>No penalty if answer is rounded to 850 mm</b></p> </div> <p>(9)</p>	<p>12.3.1 L4</p>
			[34]

<b>QUESTION 3 [26 MARKS]</b>			
<b>Ques</b>	<b>Solution</b>	<b>Explanation</b>	<b>AS</b>
3.1.1	<p>Number of R2,00 tickets per seller = <math>\frac{3500}{\text{number of sellers}}</math> ✓A</p> <p style="text-align: center;"><b>OR</b></p> <p>Number of R2,00 ticket per seller = <math>\frac{7000}{2 \times \text{number of sellers}}</math> ✓A</p> <p style="text-align: center;"><b>OR</b></p> <p>Number of R2,00 tickets per seller = <math>\frac{7000}{2n} = \frac{3500}{n}</math></p> <p>where n = number of sellers</p>	<p>1A using 3 500 1A dividing by number of sellers</p> <p style="text-align: center;"><b>OR</b></p> <p>1A using 7 000 ÷ 2 1A dividing by number of sellers</p> <p style="text-align: right;">(2)</p>	12.2.1 L3
3.1.2 (a)	Indirect/Inverse proportion ✓A	<p>1A correct type of proportion</p> <hr/> <p>two answers zero marks</p> <p style="text-align: right;">(1)</p>	12.1.1 L2
3.1.2 (b)	<p><math>P = \frac{3500}{250}</math> ✓A</p> <p style="text-align: center;"><b>OR</b> <math>P : 70 = 50 : 250</math> ✓A</p> <p style="text-align: center;"><math>= 14</math> ✓CA</p> <p style="text-align: center;"> <math>= 50 \times \frac{70}{250} = 14</math> ✓CA</p> <p><math>Q = \frac{3500}{125} = 28</math> ✓CA</p>	<p>1A finding the number of tickets</p> <p>1M dividing by 250</p> <p>1CA correct value of P</p> <p>1CA correct value of Q</p> <hr/> <p>Correct answer only - Full marks</p> <p style="text-align: right;">(4)</p>	12.2.1 L2

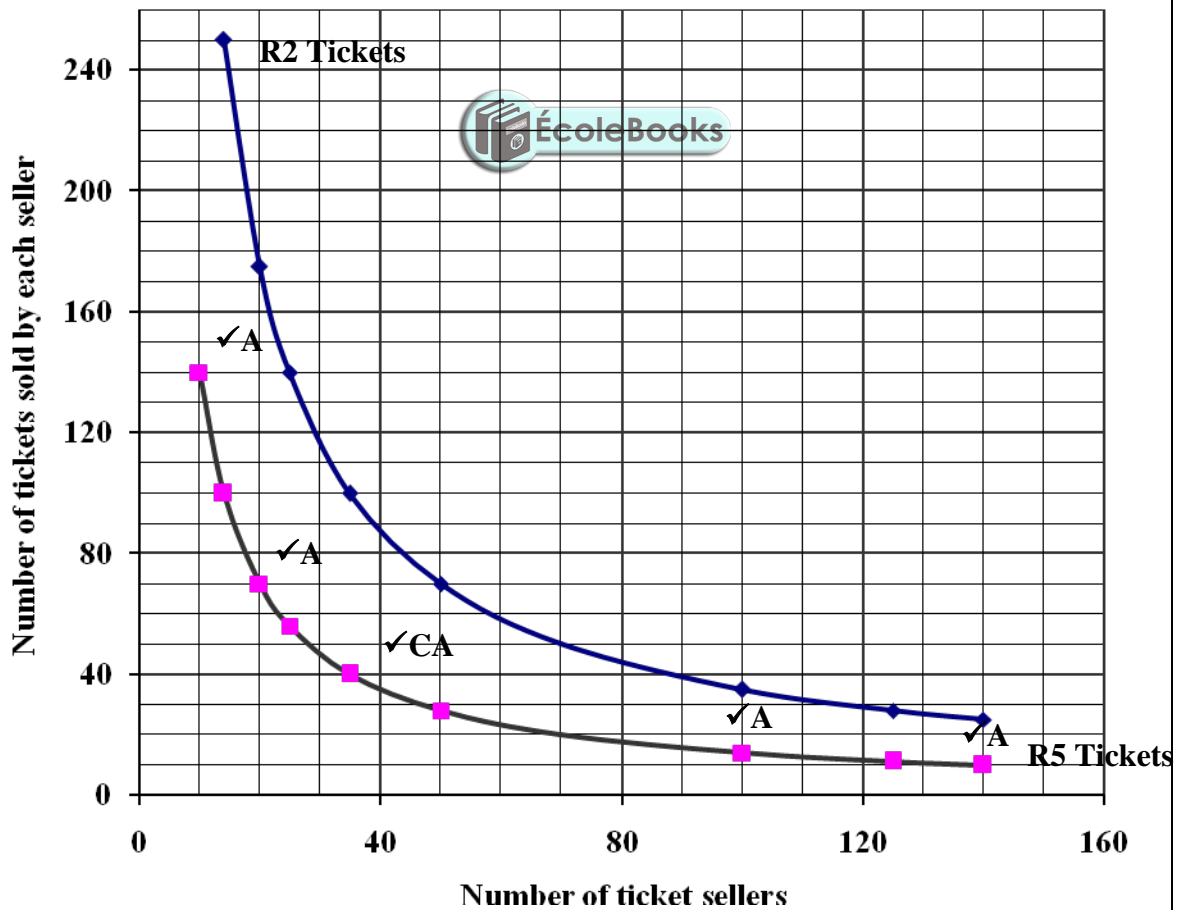
<p>3.1.2 (c)</p>	<p style="text-align: center;"><b>SALE OF RAFFLE TICKETS</b></p>  <p>1A correct plotting of point (20;175)          1A correct plotting of point (140;25)          1A one other point plotted correctly          1CA joining the plotted points by a "smooth" curve (section from 20 ticket sellers to 100 ticket sellers) (4)</p>		<p>12.2.2 L2</p>
<p>3.2.1</p>	<p>Fewer tickets have to be sold. ✓✓ J  <b>OR</b>          To reduce the number of sellers. ✓✓ J  <b>OR</b>          To raise the money faster (in a shorter time) ✓✓ J  <b>OR</b>          To raise more money/to buy more computers ✓✓ J</p>	<p>2J reason for decision</p>	<p>12.1.2 (1) 12.2.3 (1) L4 (2)</p>
<p>3.2.2</p>	<p>Fewer people can afford (too expensive) to buy the R5,00 tickets.  <b>OR</b>          Some of the sellers might not be able to sell all their tickets</p>	<p>2J disadvantage</p>	<p>12.1.2 (1) 12.2.3 (1) L4 (2)</p>

Ques	Solution	Explanation	AS
3.2.3	$\text{Number of tickets to be sold} = \frac{R7\,000,00}{R5} \checkmark M$ $= 1\,400 \checkmark A$ $\text{Number of tickets per person} = \frac{1400}{\text{number of sellers}} \checkmark CA$	1M dividing by R5  1A number of tickets to be sold  1CA formula <b>OR</b> Showing values in a table/co-ordinates - 3 marks	12.2.1 (3) 12.2.2 (5) L3 (4) L4 (4)

The possible points learners can use: (other point values can be used)

10	20	35	50	100	140
140	70	40	28	14	10

### SALE OF RAFFLE TICKETS



4CA any 4 points plotted correctly  
 1CA joining the plotted points by a smooth curve

(8)




<b>QUESTION 4 [27 MARKS]</b>			
<b>Ques</b>	<b>Solution</b>	<b>Explanation</b>	<b>AS</b>
4.1.1	Avro ✓A It is the only one that can take MORE than 37 passengers (himself plus 37 others) ✓✓J	1A correct aircraft 2J justification (3)	12.4.4 L4
4.1.2	Scale is 9,9 cm to 19,25 m ✓M or 9,9 cm to 1 925 cm OR 0,099 m : 19,25 m ✓C  Scale = 1 : $\frac{1925}{9,9}$ ✓CA OR 1 : $\frac{19,25}{0,099}$ ✓CA = 1 : 194,44 = 1 : 190 ✓CA	1M scale concept 1C converting to the same unit 1CA dividing to bring to a unit ratio 1CA rounding off  Reversed ratio maximum 2 marks No conversion maximum 2 marks  Correct answer only- full marks (4)	12.3.2 (1) 12.3.3 (3) L3
4.1.3	Maximum Operating Altitude = 25 000 feet ✓RT = $\frac{25\ 000}{6\ 076}$ nautical miles ✓M = 4,1145... nautical miles ≈ 4 nautical miles ✓CA	1RT reading from the table 1M dividing by 6076 ft  1CA nearest nautical mile (3)	12.3.2 L3
4.1.4	Distance = average cruising speed × time 510 km = average cruising speed × 39 minutes ✓SF  Average cruising speed = $\frac{510\text{ km}}{39\text{ minutes}}$ = $\frac{510\text{ km}}{0,65\text{ h}}$ ✓C = 784,62 km/h ✓CA  Ms Bobe was travelling in the <b>SUKHOI</b> ✓J <b>OR</b> ✓C Distance (Jetstream) = $(500 \times \frac{39}{60})$ km = 325 km ✓SF  Distance (Sukhoi) = $(800 \times \frac{39}{60})$ km = 520 km ✓CA  Distance (Avro) = $(780 \times \frac{39}{60})$ km = 507 km ✓J  Ms Bobe was travelling in the <b>SUKHOI</b>	1SF substitution  1C converting to hours 1CA average speed  1J identification of Aircraft <b>OR</b> 1SF substitution 1C converting to hours  1CA distance travel  1J identification of Aircraft	12.2.1 L3 (2) L4 (2)


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Ques	Solution	AS	Ques
4.1.4 cont	<p><b>OR</b> Comparing time</p> $\text{Time} = \frac{\text{distance}}{\text{speed}}$ $\text{Time (Jetstream)} = \frac{510}{500} \text{ h} = 1,02 \text{ hours} = 61,2 \text{ minutes}$ $\text{Time (Sukhoi)} = \frac{510}{800} \text{ h} = 0,6375 \text{ hours} = 38,25 \text{ minutes}$ $\text{Time (Avro)} = \frac{510}{780} \text{ h} = 0,6538... \text{ hours} = 39,23 \text{ minutes}$ <p>Ms Bobe was travelling in the <b>SUKHOI</b> ✓J</p>	<p>1SF substitution 1CA time taken</p> <p>1C converting to minutes</p> <p>1J identification of Aircraft</p> <p style="text-align: right;">(4)</p>	
4.1.5	$\text{Fuel capacity (in litres)} = \frac{\text{fuel capacity (in kg)}}{820 \text{ g}}$ $= \frac{9362 \text{ kg}}{820 \text{ g}} \quad \checkmark \text{SF}$ $= \frac{9362000 \text{ g}}{820 \text{ g}} \quad \checkmark \text{C}$ $= 11\,417,07317$ $\approx 11\,417 \quad \checkmark \text{CA}$ <p style="text-align: center;"><b>OR</b></p> $\text{Fuel capacity (in litres)} = \frac{\text{fuel capacity (in kg)}}{820 \text{ g}}$ $= \frac{9362 \text{ kg}}{820 \text{ g}} \quad \checkmark \text{SF}$ $= \frac{9362 \text{ kg}}{0,820 \text{ kg}} \quad \checkmark \text{C}$ $= 11\,417,07317$ $\approx 11\,417 \quad \checkmark \text{CA}$	<p>1SF substitution</p> <p>1C converting to grams</p> <p>1CA nearest litre</p> <hr/> <p>No conversion - maximum 2 marks</p> <p style="text-align: right;">(3)</p>	12.3.2 L2 (2) L3 (1)
4.2.1	<p>Johannesburg to Polokwane: SA 8809 ✓✓A Polokwane to Johannesburg: SA 8816 ✓A</p>	<p>2A correct flight number 1A correct flight number</p> <p style="text-align: right;">(3)</p>	12.4.4 L3





<b>QUESTION 5 [37 MARKS]</b>			
<b>Ques</b>	<b>Solution</b>	<b>Explanation</b>	<b>AS</b>
5.1.1	For 30 items: Cost = R5 000 ✓RG Income = R3 600 ✓RG Loss = R5 000 – R3 600 = R1 400 ∴ 30 items ✓A	1RG cost 1RG income  1A number of items Correct answer only - full marks (3)	12.2.2 L3
5.1.2	Cost of 40 items = R5 500 ✓RG <b>OR</b> $40 \times R50,00 + R3 500$  Income from 40 items = $R137,50 \times 40$ ✓M = R5 500 ✓A  At 40 items, Cost = Income ∴ Mr Stanford's statement is <b>CORRECT.</b> ✓CA	1RG/A cost Or Cost = income  1M finding total income 1Asimplification  1CA verification (4)	12.2.2 L4
5.2.1	N is the total sales. 16 % of N = 800 ✓M $N = 800 \times \frac{100}{16} \text{ ✓M}$ $= 5\,000 \text{ ✓A}$ <p style="text-align: center;"><b>OR</b></p> 16% of the sales = 800 1% of the sales = $\frac{800}{16}$ ✓M ∴ 100 % of the sales = $\frac{800}{16} \times 100$ ✓M ∴ N = 5 000 ✓A  <p style="text-align: center;"><b>OR</b></p> 21 % of total sales = 1 050 ✓M $\text{Total sales} = 1\,050 \times \frac{100}{21} \text{ ✓M}$ $\therefore N = 5\,000 \text{ ✓A}$  $K = \frac{750}{5\,000} \times 100 \text{ ✓M}$ $= 15 \text{ ✓CA}$	 1M concept 1M finding an expression for N  1A total sales <p style="text-align: center;"><b>OR</b></p> 1M finding unit value  1M finding 100% 1A total sales  <p style="text-align: center;"><b>OR</b></p> 1M concept 1M finding an expression for N 1A total sales  1M concept 1CA simplification	12.1.1 L2 (4) L3 (3)

Ques	Solution	Explanation	AS
	<p><b>L</b> = 17% of total sales</p> $L = \frac{17}{100} \times 5000 \quad \checkmark M$ $= 850 \quad \checkmark CA$ <p style="text-align: center;"><b>OR</b></p> <p>16% of the total is 800</p> <p>1% of the total is <math>\frac{800}{16}</math></p> <p><math>\therefore</math> 17% of the total is <math>\frac{800}{16} \times 17 \quad \checkmark M</math></p> $\therefore L = 850 \quad \checkmark CA$ <p><b>Please note</b> If L is found first:</p> $N = 350 + 750 + 1\,050 + 850 + 800 + 900 + 200 + 100$ $= 5\,000 \quad \checkmark CA$	<p>1M finding 17 %</p> <p>1CA simplification</p> <p><b>OR</b></p> <p>1M finding unit value</p> <p>1CA simplification</p> <hr/> <p><b>Correct answer only full marks</b></p> <p>The values need not be a calculated in the same order as on the memo (7)</p>	
5.2.2	<p>Vivesh's % (value of M) </p> $= \frac{900\,000}{5\,000\,000} \times 100\% \quad \checkmark M \quad \text{OR} \quad \frac{900}{5\,000} \times 100\% \quad \checkmark M$ $= 18\% \quad \checkmark CA \quad \quad \quad = 18\% \quad \checkmark CA$ <p><b>OR</b></p> $100\% - (7 + 15 + 21 + 17 + 4 + 2 + 16)\% \quad \checkmark M$ $= 18\% \quad \checkmark CA$ <p>Vivesh's bonus = 18% of R300 000 <math>\checkmark M</math></p> $= R54\,000 \quad \checkmark CA$ <p><math>\therefore</math> The objection is <b>NOT VALID.</b> <math>\checkmark CA</math></p>	<p>1M expression for %</p> <p>1CA simplification</p> <p>1M calculating percentage</p> <p>1CA simplification</p> <p>1CA conclusion (5)</p>	12.1.1 L4
5.2.3 (a)	R50 000 $\checkmark \checkmark A$	2A correct basic bonus (2)	12.1.1 L3

Ques	Solution	Explanation	AS
5.2.3 (b)	<p>Total bonus amount = <math>6,5\% \times R5\,500\,000</math>  <math>= R357\,500 \checkmark A</math></p> <p>Sales up to and including 10% : 3 persons                      Sales of more than 10% up to and including 20% : 4 persons                      Sales of more than 20% : 1 person</p> <p>Bonus amount remaining <math>\checkmark M</math> <math>\checkmark M</math>  <math>= R357\,500 - (3 \times R10\,000 + 4 \times R50\,000 + R100\,000)</math>  <math>= R357\,500 - R330\,000</math>  <math>= R27\,500 \checkmark CA</math></p> <p>Amount each will receive = <math>\frac{R27\,500}{8} \checkmark M</math>  <math>= R3\,437,50 \checkmark CA</math></p> <p>Mabel's total bonus = <math>R100\,000 + R3\,437,50</math>  <math>= R103\,437,50 \checkmark CA</math></p> <p><math>\therefore</math> Mabel's bonus is <b>NOT MORE THAN</b> <math>R104\,000</math>. <math>\checkmark O</math></p>	<p>1A total bonus</p> <p>1 M finding the total basic bonus                      1M finding the difference                      1CA simplification</p> <p>1M dividing by 8                      1CA simplification</p> <p>1CA Mabel's bonus                      (must include R100 000)</p> <p>1O verification</p> <p>(8)</p>	12.1.1 L4
5.3.1	<p>Vivesh's sales in 2012 was more than double his sales in 2011.                      Vivesh was the top salesperson in 2012. <math>\checkmark O \checkmark O</math></p> <p><b>OR</b></p> <p>There is an increase in percentage sales from 12% to 28%</p> <p><b>OR</b></p> <p>Any other numerical comparison</p>	<p>2O interpretation</p> <p>(2)</p>	12.4.6 L4
5.3.2	<p>He read Mabel's and Henry's combined sales of 2011 and 2012 as the sales for 2012. <math>\checkmark \checkmark O</math></p> <p>Henry's sales for 2012 were only 25%, Mabel's sales were 21% <math>\checkmark J</math>                      and the person with the highest sales was Vivesh with 28% <math>\checkmark J</math></p>	<p>2O errors</p> <p>1J Henry &amp; Mabel                      1J mention Vivesh as highest</p> <p>(4)</p>	12.4.6 L4
5.3.3	<p>Any <b>TWO</b> of the following:</p> <ul style="list-style-type: none"> <li>• Different type of Bar graphs <math>\checkmark O</math></li> <li>• Line graphs <math>\checkmark O</math></li> <li>• Pie charts</li> </ul>	<p>1O bar graphs</p> <p>1O line graphs  <b>OR</b>                      1O pie charts</p> <p>(2)</p>	12.4.6 L2
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**TOTAL: 150**