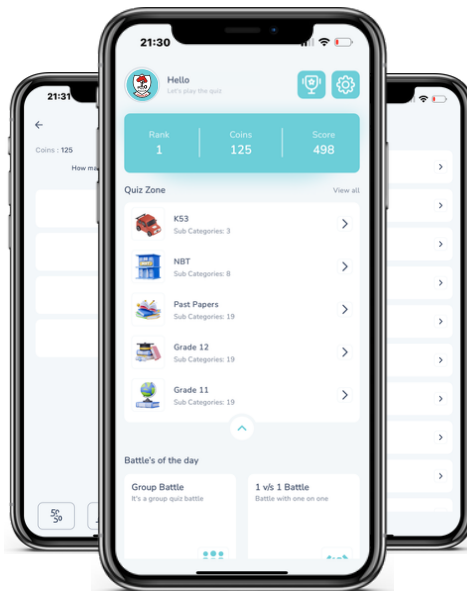




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GRADE 11

NOVEMBER 2016

**MATHEMATICAL LITERACY P2
MEMORANDUM**

MARKS: 100

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
O	Opinion

This memorandum consists of 8 pages.

QUESTION 1 [23]			
Ques.	Solution	Explanation	Level
1.1.1	Electricity ✓✓ Water ✓✓ Transport ✓✓ Accept any relevant answers.	2A One expense excluding cost of ingredients (2)	L2
1.1.2	<p>Costs for 24 muffins</p> <p>Muffin mix 500 g for 12 muffins</p> <p>1 kg of muffin mix = R12,00</p> <p>500 = $\frac{1}{2}$ kg = R6,00</p> <p>∴ For 24 muffins = R6,00 × 2 = R12 ✓</p> <p>Eggs: 6 = R10,50</p> $2 = \frac{10,50}{6} \times 2$ <p>= R3,50 ✓</p> <p>Oil $\frac{1}{2}$ cup = 250 ml</p> <p>750 ml = R12,50</p> $\therefore \frac{12,50}{750} \times 250$ <p>= R4,17 ✓ 1M</p> <p>Milk 3 cups = 750 ml</p> <p>1 000 ml = R11,50</p> $\therefore 750 \text{ ml} = \frac{11,50}{1\,000} \times 750$ <p>= R8,63 ✓ 1M</p> <p>Total amount = R12,00 + R3,50 + R4,17 + R8,63 = R28,30 ✓</p> <p style="text-align: center;">OR</p> <p>Muffin mix = $\frac{12,00}{1\,000} \times 500$</p> <p>= R6,00 ✓</p> <p>Eggs = $\frac{10,50}{6}$</p> <p>= R1,75 ✓</p> <p>Oil = $\frac{12,50}{750} \times 125$</p> <p>= R2,08 ✓</p> <p>Milk = $\frac{11,50}{1\,000} \times 375$</p> <p>= R4,31 ✓</p> <p>Total = 6 + 1,75 + 2,08 + 4,31</p> <p>= 14,14 × 2</p> <p>= R28,28 ✓</p>	<p>1M For muffin mix</p> <p>1M for eggs</p> <p>1M for oil</p> <p>1M for milk</p> <p>1CA Total amount</p> <p>(5)</p>	L3

1.1.3	<p>Cost R28,30 for 24 muffins</p> <p>$\therefore \text{ For 1 200} = \frac{28,30}{24} \times 1\,200$</p> <p>$= \text{R1 415} \checkmark$</p> <p>Selling price = R30 per dozen</p> <p>$1\,200 = 1\,200 / 12$</p> <p>$= 100 \text{ dozen} \checkmark$</p> <p>Money received for 120 dozen = 100×30</p> <p>$= \text{R3 000} \checkmark$</p> <p>Profit = $\text{R3 000} - \text{R1 415}$</p> <p>$= \text{R1 585} \checkmark$</p> <p>Statement is valid \checkmark</p> <p style="text-align: center;">OR</p> <p>$\frac{28,28}{2} = 14,14 \times 100 = \text{R1 414 (expenses)} \checkmark$</p> <p>Income = $100 \times \text{R30} \checkmark$</p> <p>$= \text{R3 000} \checkmark$</p> <p>Profit = $\text{R3 000} - \text{R1 414}$</p> <p>$= \text{R1 586} \checkmark$</p> <p>Statement is valid. \checkmark</p>	<p>CA from 1.1.2</p> <p>1MA expenses for 1 200 muffins</p> <p>1CA number of dozen</p> <p>1MA Income for 1 200 muffins</p> <p>1CA Difference</p> <p>1 O</p>	(5)	L3
1.1.4	<p>In 25 minutes she makes 24 muffins</p> <p>$\therefore 240 \text{ muffins} = \frac{25}{24} \times 240$</p> <p>$= 250 \text{ minutes} \checkmark$</p> <p>She will bake 10 times.</p> <p>Time spent on cleaning pans:</p> <p>$10 \times 10 \text{ minutes} = 100 \text{ minutes} \checkmark$</p> <p>Total time = $250 + 100 = 350 \text{ minutes}$</p> <p>Time in hours = $350 / 60$</p> <p>$= 5,833333333 \text{ hours}$</p> <p>$= 5 \text{ hours } 50 \text{ minutes} \checkmark$</p> <p>Time taken to reach destination:</p> <p>Time = $50 / 100$</p> <p>$= 0,5$</p> <p>$= 30 \text{ minutes} \checkmark$</p> <p>Total time = $5\text{h}50 + 0\text{h}30$</p> <p>$= 6 \text{ hours } 20 \text{ minutes} \checkmark$</p> <p>Time arrived = $09:00 + 6 \text{ hours } 20 \text{ minutes}$</p> <p>$= 15:20 \checkmark$</p> <p>She will arrive on time. \checkmark</p>	<p>1MA Time for baking</p> <p>1CA time for cleaning</p> <p>1CA Convert to hours and minutes</p> <p>1C driving time</p> <p>1CA adding time</p> <p>1CA time of arrival and statement</p>	(6)	L4

1.2	<p>Cleaner = $R50 \times 5 \times 20$ $= 5\,000 \checkmark$</p> <p>Driver = $\left(\frac{175}{100} \times 50\right)$ Driver per month = $R87,50 \checkmark$ $= R87,50 \times 5 \times 20$ $= 8\,750 \checkmark$</p> <p>Assistant = $50 + 25$ $= 75$</p> <p>Assistant per month = $75 \times 5 \times 20$ $= 7\,500 \checkmark$</p> <p>Total spent on workers = $5\,000 + 8\,750 + 7\,500$ $= R21\,250 \checkmark$</p>	<p>1M Salary for cleaner</p> <p>1M calculating 75% more</p> <p>1CA Salary for driver per month</p> <p>1M helper per month</p> <p>1CA total</p>	<p>(5)</p> <p>[23]</p>	L3
QUESTION 2 [27]				
Ques.	Solution	Explanation	Level	
2.1.1	<p>✓</p> <p>5 16 16 21 22 34 34 35 35 35 42 42 42 42</p> <p>$\frac{30}{100} \times 50 = 15 \checkmark$</p> <p>13 learners were able to get more than 30% and only one learner got less than 30% therefore the learners performance was good. $\checkmark\checkmark$</p>	<p>2M Calculate the number who passes</p> <p>20</p>	<p>(4)</p>	L4
2.1.2	<p>$\frac{5+16+16+21+22+34+34+35+35+35+42+42+42+42}{14} \checkmark$</p> <p>$= 421 / 14$</p> <p>$= 30,07 \checkmark$</p>	<p>CA from 2.1.1</p> <p>1M Adding values</p> <p>1A Divide by 14</p> <p>1 CA mean</p>	<p>(3)</p>	L3
2.1.3	<p>Mode = 42 \checkmark</p> <p>Median:</p> <p>5 16 16 21 22 34 34 35 35 35 42 42 42 42</p> <p>$\frac{35+34}{2} \checkmark = 34,5 \checkmark$</p> <p>$\therefore$ Difference = $42 - 34,5$ $= 7,5 \checkmark$</p>	<p>1A mode</p> <p>2MA finding the median</p> <p>1CA Difference</p>	<p>(4)</p>	L4
2.1.4	<p>$\frac{50}{100} \times 50 = 25 \checkmark$</p> <p>$\therefore \frac{5}{14} \checkmark \times 100$ $= 35,71\% \checkmark$</p> <p>Accept 35,7%</p>	<p>1M Calculate value of 50%</p> <p>1M probability as a fraction</p> <p>1CA percentage</p>	<p>(3)</p>	L3

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3.1.2	<div><p>Percentages of 2 Grade 12 learners</p><table><caption>Data for Percentages of 2 Grade 12 learners</caption><thead><tr><th>Subjects</th><th>Learner A (%)</th><th>Learner B (%)</th></tr></thead><tbody><tr><td>IsiXhosa</td><td>77</td><td>69</td></tr><tr><td>Maths</td><td>56</td><td>66</td></tr><tr><td>Accounting</td><td>56</td><td>50</td></tr><tr><td>Economics</td><td>47</td><td>62</td></tr><tr><td>Business Studies</td><td>76</td><td>71</td></tr></tbody></table></div>	Subjects	Learner A (%)	Learner B (%)	IsiXhosa	77	69	Maths	56	66	Accounting	56	50	Economics	47	62	Business Studies	76	71	<div>CA from 3.1.1</div> <div>1A for each two compound bars</div>	(5)	L2
Subjects	Learner A (%)	Learner B (%)																				
IsiXhosa	77	69																				
Maths	56	66																				
Accounting	56	50																				
Economics	47	62																				
Business Studies	76	71																				
3.1.3	Equal chances ✓✓	20	(2)	L2																		
3.2.1	<div>Rent = R1 650 × 11 = R18 150 ✓ Food = 1 500 × 10 = R15 000 ✓ Total amount = R18 150 + R15 000 ✓ = 33 150 ✓</div>	<div>1M Calculating rent 1M Calculating food 1M Addition 1CA Total (4)</div>		L2																		
3.2.2	<div>✓✓ Share room with someone OR to save on costs OR no privacy.</div>	<div>20 Explanation (2)</div>		L4																		
			[19]																			

QUESTION 4 [31]			
Ques.	Solution	Explanation	Level
4.1	<p>Triangular window: Base = 150 cm = 1,5 m Height = 100 cm = 1 m ✓ \therefore Area of triangular window = $\frac{1}{2}$ base \times height $= \frac{1}{2} \times 1,5 \times 1$ ✓ $= 0,75 \text{ m}^2$</p> <p>Total = $0,75 \times 4$ $= 3 \text{ m}^2$ ✓</p> <p>Circular window: Radius = $\frac{1}{2} \times 1,5$ $= 0,75 \text{ m}$ ✓ \therefore Area of circular window = $\pi \times r^2$ $= 3,142 \times 0,75 \times 0,75$ ✓ $= 1,767375 \text{ m}^2$</p> <p>Total = $1,767375 \times 4$ $= 7,069 \text{ m}^2$ ✓</p> <p>Square window: Width = 1,5 m Length = 1,5 m \therefore Area of square window = S^2 $= 1,5 \times 1,5$ $= 2,25 \text{ m}^2$</p> <p>Total = $2,25 \times 4$ $= 9 \text{ m}^2$ ✓</p> <p>Total area of windows for all four walls = $3 + 7,069 + 9$ ✓ $= 19,069 \text{ m}^2$ ✓</p> <p>Area of wall of 1 classroom = $l \times b$ $= 12 \times 5$ $= 60 \text{ m}^2$ ✓</p> <p>Total area for four classrooms = 60×4 ✓ $= 240 \text{ m}^2$ ✓</p> <p>Area of wall to be painted = total area of walls – total area of windows $= 240 - 19,069$ ✓ $= 220,9305 \text{ m}^2$ $= 221 \text{ m}^2$ ✓</p>	<p>1C covert to m</p> <p>1SF</p> <p>1CA answer</p> <p>1A radius</p> <p>1SF</p> <p>1CA area of four circular window</p> <p>1CA area of four square windows</p> <p>1CA adding the areas</p> <p>1CA total of areas</p> <p>1M area of 1 classroom wall</p> <p>1M for $\times 4$ area of 4 classrooms</p> <p>1CA answer</p> <p>1CA subtraction</p> <p>1CA Wall area to be painted</p> <p>(14)</p>	L3

4.2	<p>Litres required for the walls: $8 \text{ m}^2 = 1 \text{ l}$ $221 \text{ m}^2 = 1 / 1 \times 221 / 8$ $= 27,625 \text{ litres } \checkmark$ If 5 litre tins are bought: $27,625 / 5 = 5,525 = 6 \text{ tins of paint } \checkmark (5 \text{ l})$ $\text{Cost} = 6 \times 105 \checkmark$ $= \text{R}630$ If 20 litres tins are bought: $27,625 / 20 = 1,38 = 2 \checkmark$ $\text{Cost} = 2 \times 405$ $= \text{R}810 \checkmark$ Their statement is valid. \checkmark</p>	<p>CA from 4.1.1 1MA 1CA 1M x by 105 1M 1CA 1O</p>	(6)	L4
4.3.1	<p>5 l tins: Radius = 9 cm Diameter = 18 cm Box A: Number of tins over the length of the box: $130/18 = 7 \checkmark$ Number of tins over the height of the box: $25/24 = 1,04 = 1 \checkmark$ Number of tins over the width of the box: $104/18 = 5,77 = 5 \checkmark$ Total tins for Box A = $7 \times 1 \times 5$ $= 35 \text{ tins } \checkmark$ Box B: $l = 65 \text{ cm}$ $b = 49 \text{ cm}$ $h = 52 \text{ cm}$ Number of tins on the width of the box: $65/18 = 3,6 = 3$ Number tins along the length of the box: $49/24 = 2,04 = 2$ No. of tins on height = $52/18 = 2,88 = 2$ Total number of tins in box B = $3 \times 2 \times 2$ $= 12 \text{ tins } \checkmark$ Box A can carry 28 tins which is more than 2 times 12 so their argument is valid. \checkmark</p>	<p>1M number of tins over length 1M number of tins over width 1M number of boxes over height 1CA total number of tins in Box A 1CA total number of boxes in Box B 1O</p>	(6)	L3
4.3.2	<p>Tins in Box B = $12 \checkmark$ Tins in 20 boxes = 12×20 $= 240 \checkmark$ \checkmark Amount lost = $\text{R}105 \times 240 \checkmark$ $= \text{R}25\,200 \checkmark$</p>	<p>1CA from 4.3.1 1CA number of tins 1M x by 240 1A Price of paint 1CA Total amount</p>	(5)	L3
			[31]	
TOTAL:				100