



NATIONAL SENIOR CERTIFICATE

GRADE 12

JUNE 2024

MATHEMATICAL LITERACY P2 MARKING GUIDELINE

MARKS: 100

Symbol	Explanation
M	Method
M/A	Method with accuracy
CA	Consistent accuracy
A	Accuracy
C	Conversion
S	Simplification
RT/RG/RD/RM	Reading from a table/graph/diagram/map
SF	Correct substitution in a formula
O	Opinion/Explanation//Reasoning
P	Penalty, e.g. for no units, incorrect rounding off etc.
R	Rounding off
NPR	No penalty for rounding
AO	Answer only
MCA	Method with consistent accuracy
RCA	Rounding consistent with accuracy

This marking guideline consists of 10 pages.

MARKING GUIDELINES**NOTE:**

- If a candidate answers a question TWICE, only mark the FIRST attempt.
- If a candidate has crossed out (cancelled) an attempt to a question and NOT redone the solution, mark the crossed out (cancelled version).
- Consistent Accuracy (CA) applies in ALL aspects of the marking guidelines; however, it stops at the second calculation error.
- If the candidate presents any extra solution when reading from a graph, table, layout plan and map, then penalise for every extra incorrect item presented.

KEY TO TOPIC SYMBOL:**F = Finance; M = Measurement; MP = Maps, plans and other representations; P = Probability****QUESTION 1 [20 MARKS]****ANSWER ONLY FULL MARKS**

Ques.	Solution	Explanation	Level
1.1.1	The perimeter of a shape is the total distance around the edges defining the outline of that shape. ✓✓A OR Total distance around the shape. ✓✓A	2A correct explanation (2)	M L1
1.1.2	Length of wall = $\frac{370}{100}$ ✓C = 3,7 m ✓A	1C convert cm to m 1A correct answer (2)	M L1
1.1.3	P = length + length + height + height = 3,7 + 3,7 + 2,1 + 2,1 ✓M = 11,6 m ✓CA	CA from 1.1.2 1M adding correct values 1CA correct answer from 1.1.2 (2)	M L1
1.2.1	Distance cycled = $\frac{75}{0,6214}$ ✓MA = 120,6952044 ≈ 120,7 km ✓A Accept: 121 km / 120,695 km	1MA dividing correct values 1A correct answer NPR (2)	M L1
1.2.2	Total distance logged: = 120,7 km + 114,3 km + 271 km + 148,1 km ✓M = 654,1 km ✓CA Accept 654,4 km / 654,095	CA from 1.2.1 1M adding correct values 1CA correct answer (2)	M L1
1.3.1	Pniel ✓✓RT	2RT reading from map (2)	MP L1
1.3.2	5 water points ✓✓RT	2RT correct answer (2)	MP L1
1.3.3	N1 ✓✓RT	2RT correct answer (2)	MP L1
1.3.4	SW or Southwest ✓✓RT	2RT correct direction (2)	MP L1
1.3.5	Helshoogte Pass ✓✓RT	2RT correct answer (2)	MP L1
		[20]	

QUESTION 2 [24 MARKS]			
Ques.	Solution	Explanation	Level
2.1.1	Bar Scale ✓✓A OR Linear Scale ✓✓A OR Graphic ✓✓A Scale	2A identifying correct scale (2)	MP L1
2.1.2	N6 ✓RT and N1 ✓RT	1RT first national road 1RT second national road Accept any order (2)	MP L1
2.1.3	North ✓A North East OR NE ✓A	1A first direction 1A second direction (2)	MP L2
2.1.4	His wife will be crossing the border between two countries and therefore needs a passport. ✓✓O OR His wife will enter another country. ✓✓O	2O opinion (2)	MP L4
2.1.5	$\% \text{ difference} = \frac{\overset{\check{M}}{R22,49} - \overset{\check{M}}{R21,77}}{\underset{\check{A}}{R21,77}} \times 100\% \quad \check{M}$ $= 3,307\% \quad \check{CA}$ <p>Statement is invalid – it will cost less than 4% ✓O</p> <p style="text-align: center;">OR</p> $\% \text{ difference} = \frac{\overset{\check{M}}{(R22,49 \times 75)} - \overset{\check{M}}{(R21,77 \times 75)}}{\underset{\check{A}}{(R21,77 \times 75)}} \times 100\% \quad \check{M}$ $= \frac{1\,686,75 - 1\,632,75}{1\,632,75} \times 100\%$ $= 3,307\% \quad \check{CA}$ <p>Statement is invalid – it will cost less than 4%. ✓O</p>	1M subtracting correct values 1M multiplying with 100% 1A correct denominator 1CA simplification 1O opinion OR 1M subtracting correct values 1M multiplying with 100% 1A correct denominator 1CA simplification 1O opinion (5)	F L4

2.2.1	<p>Staff working at the gates need to go home. ✓✓O</p> <p>OR</p> <p>The wild animals in the park make it unsafe to travel or be in unprotected parts during the night. ✓✓O</p> <p>OR</p> <p>Animals are not visible in the dark, park/camp gates open when people can see the animals. ✓✓O</p> <p>OR</p> <p>Access control ✓✓O</p> <p>OR</p> <p>To avoid overcrowding ✓✓O</p> <p>OR</p> <p>Security reasons ✓✓O</p> <p>OR</p> <p>So that people travelling from far or within the Kruger National Park, can plan ahead. ✓✓O</p> <p>OR</p> <p>Accept any other valid reason.</p>	<p>2O reason</p> <p>(2)</p>	<p>MP L4</p>
2.2.2	<p>Other camps = 5</p> <p>Main camps = 7 ✓RT</p> <p>Difference = $7 - 5 = 2$ ✓CA</p>	<p>1RT number of both camps</p> <p>1CA difference with 1 correct camp</p> <p>AO (2)</p>	<p>MP L2</p>
2.2.3	<p>Distance = speed \times time</p> <p>✓RT</p> <p>$54 \text{ km} = 50 \text{ km/h} \times \text{time}$ ✓SF</p> <p>Time on gravel road</p> $= \frac{54 \text{ km}}{50 \text{ km/h}} \quad \checkmark S$ <p>= 1,08 h</p> <p>= 1h 4 min 48 sec ✓C</p> <p>Time he will arrive at the gate is:</p> <p>17:15 + 1:4:48</p> <p>= 18:19:48 ✓CA</p> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>If calculated as follows do not penalise.</p> <p>1h05min</p> <p>17:15 + 1h05min = 18:20</p> </div>	<p>1RT distance</p> <p>1SF substitution with 50 km/h</p> <p>1S change the formula</p> <p>1C converting time</p> <p>1CA arrival time</p> <p>(5)</p>	<p>MP L3</p>

2.2.4	<p>The roads are not so busy / people drive slower / more animals are visible. ✓✓O</p> <p style="text-align: center;">OR</p> <p>It is the scenic route. ✓✓O</p> <p style="text-align: center;">OR</p> <p>To experience a sense of adventure. ✓✓O</p> <p style="text-align: center;">OR</p> <p>Gravel roads give you more access (short cut) to different parts of the park. ✓✓O</p> <p style="text-align: center;">OR</p> <p>The route blends in with nature and gives a more authentic bushveld experience. ✓✓O</p> <p style="text-align: center;">OR</p> <p>Accept any other reasonable answer.</p>	2O reason	MP L4
		(2)	
		[24]	

QUESTION 3 [36 MARKS]			
Ques.	Solution	Explanation	Level
3.1.1	<p>Number of coloured pencils across $= 83 \div 6 \checkmark M$ $= 13,833333... \checkmark CA$ ≈ 13 pencils $\checkmark R$</p> <p>Number of coloured pencils down $= 22 \div 16,7 \checkmark M$ $= 1,317365269$ ≈ 1 pencil $\checkmark R$</p> <p>Total number of pencils in one container $= 13 \times 1$ $= 13$ pencils $\checkmark CA$</p> <p>Number of pencils in 3 containers $= 13 \times 3 \checkmark M$ $= 39$ pencils $\checkmark CA$</p> <p>\therefore Correct $\checkmark O$</p>	<p>1M dividing diameters 1CA simplification 1R number of pencils</p> <p>1M dividing heights 1R number of pencils</p> <p>1CA number of pencils in one container</p> <p>1M multiply by 3 1CA total number of pencils 1O opinion</p> <p>(9)</p>	M L4
3.1.2	<p>Probability of taking a purple pencil from a container $= \frac{6}{39} \checkmark A$ $= 0,153846153$ $\approx 0,154 \checkmark R$</p>	<p>CA from 3.1.1 1A numerator 1A denominator 1R 3 decimal places</p> <p>(3)</p>	P L2
3.2.1 (a)	<p>Area of rectangle = length \times width $= 150 \text{ mm} \times 120 \text{ mm} \checkmark C \checkmark SF$ $= 18\,000 \text{ mm}^2 \checkmark A$</p>	<p>1C convert to mm 1SF substitution 1A area of rectangle</p> <p>(3)</p>	M L2
(b)	<p>Area of circle $= \pi \times \text{radius}^2$ $= 3,142 \times 40^2 \checkmark A$ OR $3,142 \times 40 \times 40 \checkmark A$ $= 5\,027,2 \text{ mm}^2 \checkmark CA$ $= 5\,027,2 \text{ mm}^2 \checkmark CA$</p> <p>Area without photo $= 18\,000 \text{ mm}^2 - 5\,027,2 \text{ mm}^2 \checkmark M$ $= 12\,972,8 \text{ mm}^2$ $\approx 12\,973 \text{ mm}^2 \checkmark CA$</p>	<p>CA from 3.2.1 (a) 1A radius 1CA area of circle</p> <p>1MCA subtracting two areas 1CA rounding to nearest mm^2</p> <p>(4)</p>	M L3

3.2.2	<p>Surface area of gift box</p> $= 2 (\text{length} \times \text{width}) + 2 (\text{width} \times \text{height}) + 2 (\text{length} \times \text{height})$ $= 2 (38,8 \times 27,5) + 2 (27,5 \times 30,0) + 2 (38,8 \times 30,0) \checkmark \text{SF} \checkmark \text{A}$ $= 2\,134 + 1\,650 + 2\,328 \checkmark \text{S}$ $= 6\,112 \text{ cm}^2 \checkmark \text{CA}$	<p>1SF substitution 1A correct values 1S simplification 1CA surface area</p> <p>(4)</p>	M L2
3.3.1	<p>Diameter = $31 \text{ m} \times 2 \checkmark \text{M}$</p> $= 62 \text{ m} \checkmark \text{A}$	<p>1M multiply radius by 2 1A correct diameter</p> <p>(2)</p>	M L2
3.3.2	<p>Maximum height = $50 \text{ m} + 31 \text{ m} \checkmark \text{MA}$</p> $= 81 \text{ m} \checkmark \text{A}$	<p>1MA adding correct values 1A answer</p> <p>(2)</p>	M L2
3.3.3	<p>Circumference = $2 \times \pi \times \text{radius}$</p> $= 2 \times 3,142 \times 31 \checkmark \text{SF}$ $= 194,804 \times 2$ $= 389,608 \text{ m} \checkmark \text{MA}$	<p>1SF substitution 1MA multiply by 2 and answer NPR</p> <p>(2)</p>	M L2
3.3.4	<p>Number of households = $\frac{1\,750}{25} \checkmark \text{M}$</p> $= 70 \text{ households} \checkmark \text{A}$	<p>1M dividing by 25 1A correct answer</p> <p>(2)</p>	M L1
3.4	<p>Volume of 2 cylindrical basins used three times a day</p> $= \pi \times r^2 \times h$ $= (3,142 \times 30^2 \times 45) \times 2 \times 3 \checkmark \text{SF} \checkmark \text{M}$ $= 763\,506 \text{ cm}^3 \checkmark \text{CA}$ <p>Litres of water used daily</p> $= \frac{763\,506}{1\,000} \times \frac{3}{4} \checkmark \text{C}$ $= 572,6295 \text{ litres} \checkmark \text{CA}$ <p style="text-align: center;">OR</p> <p>Volume of 2 cylindrical basins used three times a day</p> $= \pi \times r^2 \times h$ $= (3,142 \times 30^2 \times 45) \times 2 \times 3 \checkmark \text{SF} \checkmark \text{M}$ $= 763\,506 \text{ cm}^3 \checkmark \text{CA}$ <p>Litres of water used daily</p> $= 763\,506 \times \frac{3}{4}$ $= 572\,629,5 \text{ cm}^3$ $= \frac{572\,629,5}{1\,000} \checkmark \text{C}$ $= 572,6295 \text{ litres} \checkmark \text{CA}$	<p>1SF substitution 1M multiplying by 2 and 3 1CA volume</p> <p>1C converting to litres 1CA $\frac{3}{4}$ litres of water</p> <p>1SF substitution 1M multiplying by 2 and 3 1CA volume of water</p> <p>1C converting to litres 1CA $\frac{3}{4}$ litres of water</p> <p>(5)</p>	M L3
		[36]	

QUESTION 4 [20 MARKS]			
Ques.	Solution	Explanation	Level
4.1.1	<p>Total number of hours:</p> <p>Friday: $24:00 - 15:30 = 8,5$ hours ✓A</p> <p>Saturday – Monday = $24 \text{ hours} \times 3 \text{ days} = 72 \text{ hours}$ ✓A</p> <p>Tuesday = 10 hours ✓A</p> <p>Total number of hours = $8,5 + 72 + 10 = 90,5$ hours ✓MA</p> <p>Invalid ✓O</p>	<p>1A number of hours on Friday</p> <p>1A number of hours for 3 days</p> <p>1A number of hours on day of departure</p> <p>1MA adding correct values and correct answer.</p> <p>1O opinion</p> <p>(5)</p>	M L4
4.1.2	<p>radius = $\frac{\text{diameter}}{2} = \frac{10}{2} = 5 \text{ cm}$ ✓A</p> <p>Volume of cylinder = $3,142 \times \text{radius}^2 \times \text{height}$</p> <p>$1\,571 \text{ cm}^3 = 3,142 \times 5^2 \times \text{height}$ ✓SF</p> <p>Height = $\frac{1\,571}{78,55}$ ✓M</p> <p>Height = 20 cm ✓CA</p>	<p>1A find radius</p> <p>1SF substitution</p> <p>1M change subject of the formula</p> <p>1CA finding the height</p> <p>(4)</p>	M L3
4.1.3	<p>Area of top and bottom surface = $78,55 \text{ cm}^2 \times 2$ ✓M</p> <p>= $157,1 \text{ cm}^2 \div 100^2$ ✓C</p> <p>= $0,01571 \text{ m}^2$ ✓S</p> <p>Total cost = $0,01571 \text{ m}^2 \times \text{R}144,65$ ✓M</p> <p>= $\text{R}2,27$ ✓CA</p> <p style="text-align: center;">OR</p> <p>Area of top = $78,55 \text{ cm}^2 \div 100^2$ ✓C</p> <p>= $0,007855 \text{ m}^2$ ✓S</p> <p>Cost of wood of top = $0,007855 \times \text{R}144,65$ ✓M</p> <p>= $\text{R}1,13622575$</p> <p>Total cost = $\text{R}1,13622575 \times 2$ ✓M</p> <p>= $\text{R}2,27$ ✓CA</p>	<p>1M multiply by 2</p> <p>1C divide by 100^2</p> <p>1S simplification of answer in m^2</p> <p>1M multiply $\text{R}144,65$</p> <p>1CA answer</p> <p>OR</p> <p>1C divide by 100^2</p> <p>1S simplification of answer in m^2</p> <p>1M multiply $\text{R}144,65$</p> <p>1M multiply by 2</p> <p>1CA answer</p> <p>(5)</p>	F L3
4.2.1	<p>Actual length = $3,4 \text{ cm} \times 65$ ✓M</p> <p>= 221 cm ✓A</p>	<p>1M multiply correct values and correct answer</p> <p>1A answer</p> <p>(2)</p>	MP L2

