



# **NATIONAL SENIOR CERTIFICATE**

**GRADE 12**

**JUNE 2024**

## **MATHEMATICAL LITERACY P1 MARKING GUIDELINE**

**MARKS: 100**

<b>Symbol</b>	<b>Explanation</b>
<b>M</b>	Method
<b>MA</b>	Method with accuracy
<b>CA</b>	Consistent accuracy
<b>A</b>	Accuracy
<b>C</b>	Conversion
<b>S</b>	Simplification
<b>RT</b>	Reading from a table/graph/document/diagram
<b>SF</b>	Correct substitution in a formula
<b>O</b>	Opinion/Explanation
<b>P</b>	Penalty, e.g. for no units, incorrect rounding off, etc.
<b>R</b>	Rounding off
<b>NPR</b>	No penalty for correct rounding minimum two decimal places
<b>AO</b>	Answer only
<b>MCA</b>	Method with constant accuracy

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This marking guideline consists of 9 pages.

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**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 question, mark the crossed out (cancelled) version.
- Consistent accuracy (CA) applies in ALL aspects of the marking guidelines. Stop marking at the second calculation error.
- **NOTE:** Consistent accuracy (CA) does NOT apply in cases of a breakdown.
- If the candidate presents any extra solution when reading from a graph, and table then penalise for every extra item presented.
- As a general marking principle, if a candidate has incurred one mistake and there is evidence of sound Mathematics thereafter, then that candidate should lose ONE mark only.

**Topics: F – Finance, DH – Data Handling, P – Probability**

<b>QUESTION 1 [20 MARKS]</b>			
<b>Ques.</b>	<b>Solution</b>	<b>Explanation</b>	<b>T&amp;L</b>
1.1.1	R10,00 ✓✓RT	2RT reading from table (2)	F L1
1.1.2	The rate will be paid per full one hour even if you spend less than one hour ✓✓ O	2 Opinion (2)	F L1
1.1.3	Amount paid: $\frac{75}{100} \times 20 \checkmark M = R15 \checkmark A$	1M multiplication 1A answer (2)	F L1
1.2.1	Discrete ✓✓A	2 A correct classification (2)	DH L1
1.2.2	Four hundred and ninety thousand, nine hundred and ninety-three ✓✓A	2 A correct wording (2)	DH L1
1.2.3	$100\% - 68\% = 32\% \checkmark A$ $\therefore \frac{32}{100} \times 490\,993 = 157\,117,76 \checkmark CA$ $\approx 157\,118 \checkmark A$ <p style="text-align: center;"><b>OR</b></p> Females $= \frac{68}{100} \times 490\,993 \checkmark MA$ $= 333\,875,24 \text{ MA}$ $= 490\,933 - 333\,875,24 \checkmark M$ $= 157\,117,76$ $= 157\,118 \checkmark CA$	1A calculating male percentage 1CA simplification 1A answer R 1MA calculating female number M subtracting correct values CA simplification (3)	DH L1

1.2.4	$\frac{68}{100} \times 490\,993 = 333\,875,24 \approx 333\,875 \checkmark M$ $333\,875 : 490\,993 \checkmark M$ $1 : 1,47 \checkmark A$ Accept also [using percentages] $68 : 100$ $1 : 1,47$	1M multiplication 1MA concept of ratio in correct order 1CA simplification (3)	DH L1
1.3.1	B $\checkmark \checkmark$	2A correct option (2)	P L1
1.3.2	D $\checkmark \checkmark A$	2A correct option (2)	P L1
		<b>[20]</b>	

QUESTION 2 [21 MARKS]			
Ques.	Solution	Explanation	T&L
2.1	$\frac{7,5}{100} \times 12 \checkmark M \times R32\,500 \checkmark S = R29\,250 \checkmark A$	1M multiply by 12 1 simplification 1A answer (3)	F L2
2.2	<p>Annual salary <math>R32\,500 \times 12</math></p> <p><math>= R390\,000 \checkmark M</math></p> <p>Taxable income <math>= R390\,000 - R29\,250</math></p> <p><math>= R360\,750 \checkmark A</math></p> <p>Annual tax <math>= R73\,726 + 31\% \times (R360\,750 - R353\,100) \checkmark SF</math></p> <p><math>= R73\,726 + 0,31 \times R7\,650</math></p> <p><math>= R73\,726 + R2\,371,50</math></p> <p><math>= R76\,097,50</math></p> <p>Less rebate: <math>R76\,097,50 - R16\,425 \checkmark M</math></p> <p><math>= R59\,672,50</math></p> <p>Less MTC</p> <p><math>R59\,672,50 - [(R347 + R347 + R234 + R234 + R234) \times 12]</math></p> <p><math>= R59\,672,50 - R16\,752 \checkmark M</math></p> <p>Annual tax <math>= R42\,920,50</math></p> <p>Monthly tax <math>= \frac{R42\,920,50}{12} \checkmark M</math></p> <p><math>= R3\,576,71 \checkmark CA</math></p> <p>15% of salary: <math>\frac{15}{100} \times R32\,500 = R4\,875 \checkmark A</math></p> <p>Not valid. <math>\checkmark O</math></p>	<p>1MA annual salary</p> <p>1A taxable income</p> <p>1SF correct substitution</p> <p>1MA subtracting correct rebate</p> <p>1MA subtracting medical tax credit</p> <p>1MCA division by 12</p> <p>1CA monthly tax</p> <p>1A 15% of salary</p> <p>1O opinion (9)</p>	F L3

2.3	$R170\,734 + 39\% \times (R817\,600 - R641\,400) \checkmark \text{SF} \checkmark \text{S}$ $= R170\,734 + R68\,718 \checkmark \text{M}$ $= R239\,452$	1SF correct substitution 1simplification 1M addition  (3)	F L2
2.4	Lump sum = $80\% \times R32\,500 \checkmark \text{M}$ $= R26\,000 \checkmark \text{A}$  Balance at the end of First Year $= R26\,000 + 11,5\% \times R26\,000 \checkmark \text{M} = R28\,990 \checkmark \text{A}$  Balance at the end of Second Year $= R28\,990 + 11,5\% \times R28\,990 = R32\,323,85 \checkmark \text{A}$  Balance at the end of Third Year $= R32\,323,85 + 11,5\% \times R32\,323,85 = R36\,041,09 \checkmark \text{CA}$  <p style="text-align: center;"><b>OR</b></p> Balance $= R26\,000 \times 1,115 \checkmark \text{M} \times 1,115 \checkmark \text{M} \times 1,115 \checkmark \text{M}$ $= R36\,041,09 \checkmark \text{A}$	1MA calculating 80% 1simplification  1M multiplication 1A answer  1A answer  1CA answer  (6)	F L3
		<b>[21]</b>	

QUESTION 3 [30 MARKS]			
Ques.	Solution	Explanation	T&L
3.1	Northern Cape ✓✓A	2A answer (2)	DH L1
3.2	<p>Method 1:  <math>A = 26\,850\,972 - (3\,348\,392 + 1\,422\,384 + 6\,274\,046 + 1\,965\,259 + 634\,792 + 2\,714\,474 + 1\,718\,340 + 3\,198\,146) \checkmark M</math>  <math>A = 5\,575\,139 \checkmark A</math></p> <p>Method 2:  <math>\frac{20,76}{100} \times 26\,850\,972 \checkmark M</math>  <math>= 5\,574\,261,78</math>  <math>\approx 5\,574\,262 \checkmark A</math>  The difference is caused by rounding off to two decimal places of the percentage. ✓✓</p>	<p>1M addition 1A answer</p> <p>1M multiplication 1A rounded off answer</p> <p>2O explanation (6)</p>	DH L4
3.3	$\frac{3\,198\,146}{26\,850\,972} \checkmark RT \times 100\% \checkmark M = 11,91\% \checkmark A$	1RT correct values 1M multiplication 1 A answer (3)	DH L2
3.4	<p>Mean = <math>\frac{26\,850\,972}{9} \checkmark RT \checkmark M</math>  <math>= 2\,983\,441,333 \checkmark A</math>  <math>\approx 2\,983\,441 \checkmark R</math></p>	1RT correct values 1M division 1A answer 1R rounding (4)	DH L2
3.5	<p>Ascending order:  634 792; 1 422 384; 1 718 340; 1 965 259; 2 714 474;  3 198 146; 3 348 392; 5 575 139; 6 274 046 ✓M</p> <p>Lower Quartile = <math>\frac{1\,422\,384 + 1\,718\,340}{2} \checkmark MA</math>  <math>= 1\,570\,362 \checkmark A</math></p> <p>Upper Quartile = <math>\frac{3\,348\,392 + 5\,575\,139}{2}</math>  <math>= 4\,461\,765,5 \checkmark A</math></p> <p>IQR = <math>4\,461\,765,5 - 1\,570\,362 \checkmark M</math>  <math>= 2\,891\,403,5 \approx 2\,891\,404 \checkmark A</math></p>	<p>1M arranging in ascending/ descending order 1MA calculating lower quartile 1A simplification 1A upper quartile 1CA calculating IQR 1A answer (6)</p>	DH L2



QUESTION 4 [29 MARKS]			
Ques.	Solution	Explanation	T&L
4.1.1	7 000 000 ✓✓A	2A answer (2)	F L1
4.1.2	$\frac{\$7\,000\,000}{30} \checkmark M$ $= \$233\,333,33 \checkmark A$ $\approx \$233\,000 \checkmark R$	1M division by 30 1A answer 1R rounding off (3)	F L2
4.2.1	$5\,000 \times 19,1305 \checkmark RT = R95\,652,50 \checkmark M$ $2\,000 \times 24,3861 = R48\,772,20 \checkmark A$ Total = R144 424,70 ✓A Commission $\frac{2,5}{100} \times 144\,424,7 = R3\,610,62 \checkmark M$ Money deposited $R144\,424,70 - R3\,610,62 = R140\,814,08 \checkmark A$	1RT correct values 1M multiplication 1A answer 1A answer 1M multiplication  1A answer (6)	F L4
4.2.2	To make profit. ✓✓O	2O explanation (2)	F L4
4.3.1	5 provinces ✓✓A	2A answer (2)	DH L1
4.3.2	Pie chart ✓✓A	2A answer (2)	DH L1
4.3.3	$\frac{5 \checkmark RT}{8 \checkmark RT} \times 100 \checkmark M = 62,5\% \checkmark A$	2 RT correct values 1M multiply by 100 1A answer (4)	P L2
4.4.1	Income generated from selling packs is equal to the cost of packs. ✓✓O	2O explanation (2)	F L1
4.4.2	Fixed cost ✓✓A	2A answer (2)	F L1



4.4.3	Formula for income = $750n$ ✓M Formula for cost = $6\,000 + 350n$ ✓M  Break-even: $750n = 6\,000 + 350n$ ✓M  $400n = 6\,000$  $n = 15$ packs ✓A	1M formula for income  1M formula for cost  1M equation  1A answer  (4)	F L4
		[29]	
		<b>TOTAL: 100</b>	