LIMPOPO
PROVINCIAL GOVERNMENT
REPUBLIC OF SOUTH AFRICA

DEPARTMENT OF
EDUCATION

NATIONAL SENIOR CERTIFICATE

GRADE 11

MATHEMATICAL LITERACY

CONTROLLED TEST

MARCH 2026

MARKS: 100

TIME: 2 hours

This question paper consists of 9 pages, including the cover page.

INSTRUCTIONS AND INFORMATION

1. This question paper consists of THREE questions
2. Answer **ALL** the questions.
3. You may use an approved calculator (non-programmable and non-graphical), unless stated otherwise.
4. Show **ALL** your calculations clearly.
5. Round off ALL final answers appropriately according to the given context, unless stated otherwise.
6. Indicate units of measurement, where applicable.
7. Maps and diagrams are NOT necessarily drawn to scale, unless stated otherwise.
8. Start EACH question on a NEW page.
9. Write neatly and legibly.

QUESTION 1

1.1

Bhanu started a business of selling Cappuccino Coffee in cups. It costs him R9,50 to make a Cappuccino coffee cup. His daily fixed cost is R90,00 and he will be able to sell 100 cups of Cappuccino coffee per day. He sells the Cappuccino Coffee at R12,50 per cup.

No. of cups of Cappuccino Coffee	0	20	30	40	80	**Q**
Income in rand	0	250	375	**P**	1 000	1 250

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Use the above information to answer the questions that follow.

1.1.1 Define the term " Fixed cost" according to the given context. (2)

1.1.2 Identify the independent and dependent variable. (4)

1.1.3 Determine the selling price of ONE Cappuccino coffee. (2)

1.1.4 Determine the formula that will be used to determine the income received. (2)

1.1.5 Determine the value of P and Q in the table above. (5)

1.2

Dollar bakes 18 cakes for a farewell function of Bimbini crèche. He buys the ingredients according to the recipe he got from his father who was a baker. He decorated the cakes for free.

The recipe makes 18 cakes, and the ingredients and method are stipulated below.

INGREDIENTS	METHOD
2 cups of flour 1 cup sugar 2 teaspoons (tsp) of baking powder 2 cups milk 1 cup of oil/ 125g margarine 6 eggs 1 teaspoon vanilla essence	➢ Beat eggs, vanilla essence and sugar together. ➢ Sift dry ingredients ➢ Heat milk and oil/ margarine together for 2 minutes. ➢ Mix all the above ingredients ➢ Pour into prepared cake pans ➢ Bake for 25 minutes at 180°C

NB: 1 cup = 250 ml 1 teaspoon = 5 ml 3 grams = 5 ml

Use the above information to answer the questions that follow.

1.2.1 Convert 2 cups of flour into milliliters. (2)

1.2.2 Write the ratio of baking powder to eggs in the above recipe in the simplest form. (2)

1.2.3 Calculate how many eggs are needed by Dollar to make 72 sponge cakes. (3)

1.2.4 Convert 2 cups of milk into liters. (2)

1.2.5 The time for baking is 25 minutes. Convert those minutes to hours. (2)

1.2.6 Convert 380 ˚F to degrees Celsius. Round your answer to two decimal places. (4)

You may use the formula: $^{\circ}\mathbf{F} = (\mathbf{1{,}8} \times {}^{\circ}\mathbf{C}) + \mathbf{32}^{\circ}$

[30]

QUESTION 2

2.1

Two friends, Teddy and Michael, took part in a 15 km fun run marathon. The marathon started at 05:00 in the morning. The winner took 1, 2 hours to complete the marathon. Teddy took 1h23 min 12 sec and Michael took 1h39 min 4 sec.

Use the above information to answer the questions that follow.

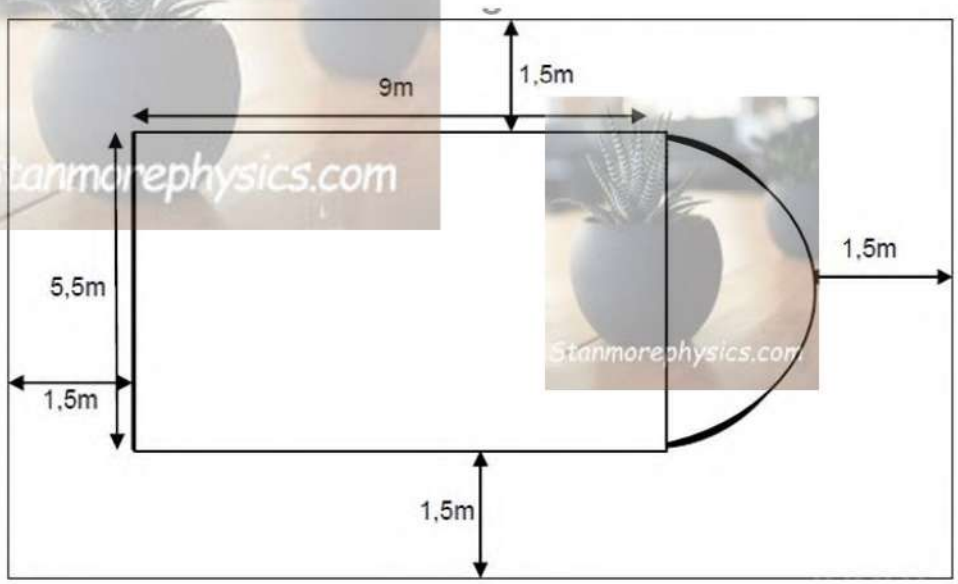
2.1.1 Express 1, 2 hours in hours and minutes. (2)

2.1.2 Determine how long Teddy had to wait for Michael at the finish line. (3)

2.2

Mr Adam Buys is a fish farmer who has a fishpond in his yard. He is planning to have a fence around the pond. The fence should be 1, 5 m away from the pond.

The diagram below shows the structure of Mr Adam Buys' pond.



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Use the information above to answer the questions that follow.

2.1 Define the term **"Perimeter"** according to the given context. (2)

2.2 Calculate the perimeter of the fence around the pond in metres. (6)

2.3 Determine the cost if fencing is sold in 5m rolls for R162,50 (4)

2.4 Determine the number of poles required to hold the fence if the poles are spaced with a maximum space of 1,8 m, there is a gate of 1 m in one of the sides and if there is to be a pole in every corner. (4)

2.5 Calculate the cheapest cost for all the poles if they are sold in bundles of 6 for R500 or as singles for R98,00. (3)

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QUESTION 3

3.1

Una has a catering company, and she bought an urn to prepare tea for her customers. She uses a bucket to fill the urn.

The dimensions of the urn and the dimensions of the bucket are indicated below.

- **The height of the urn excluding the lid is 380 mm.**
- **The base of the urn is 4 cm high.**
- **The volume of the bucket is 18,46 litres.**

NB: 1 ℓ = 1 000 cm^3

Study the diagram above and answer the questions below.

3.1.1 Define the term **"Volume"** in this context. (2)

3.1.2 Determine the height of the bucket, rounded off to the nearest cm.

You may use the formula: **Volume = $\ell \times b \times h$** (6)

3.1.3 Show that the circumference of the urn is 138,248 cm.

You may use the formula: **Circumference = $\pi \times$ d**; where $\pi = 3,142$ (2)

3.2

Shirley boiled the water and wrapped the outer part of the urn (the steel part) with foil.

Use the information in **3.1** and information above to answer the questions below.

3.2.1 Determine the radius of the urn. (2)

3.2.2 Hence, calculate the area of the urn which was covered with foil.

You may use the formula: **Area to be covered = $2\pi r \times h$; where $\pi = 3,142$** (5)

3.2.3 Determine the volume of the urn.

You may use the formula: **Volume of urn = $\pi r^2 h$**; where $\pi = 3,142$ (2)

3.2.4 Give a reason for wrapping the urn with foil. (2)

3.3 Shirley uses a bucket to refill the urn. The bucket holds 18,46 liters of water.

Determine the number of buckets needed to refill the empty urn. (4)

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QUESTION 4

4.1

Maria runs a small motorcycle service business from home.

Given below is the budget drawn up by him for the new month.

INCOME	AMOUNT	EXPENSES	AMOUNT
26 Motorcycle services	R33 150,00	Detergents	R375,00
25 Car washes	R1 625,00	Motorcycle parts	…
		Water	R850,25
		Electricity	R1 500,00
TOTAL INCOME	**…**	**TOTAL EXPENSES**	**R7 927,86**

****

Use the above information to answer the questions that follow.

4.1.1 Explain the term "***Budget***" according to the given context. (2)

4.1.2 Calculate the total income. (2)

4.1.3 Calculate the amount spent on motorcycle parts. (2)

4.1.4 Write the amounts of Detergents to Electricity as a unit ratio in the form 1: ….. (3)

4.1.5 Calculate the percentage of total expenses David spends on water. (3)

4.2

Below is a till slip for Sasha's groceries. Study the till slip and answer the questions that follow.

PHUGWANI STORES
11TH STR.LIGHTDOVE
TEL: 015 964 5551
TAX INVOICE: VAT No. 44223377556699

Milk Tart	R17,99
Apple Crumble	R29,99
Carrier bag	R0,40
Carrier bag	R0,40
Marshmallow	R9,99
Dairy Custard	R17,99
Hot dog rolls	R6,65
Lemon Biscuits	R7,99
ENT. Bacon/egg 0,458 kg @R49,99/kg	R22,90
Sunflower Oil 250 ml	R14,99*
Popcorn	R7,99
Chicken Mayo Roll	R23,99
Brown Bread	R10,99*
Pumpkin Seed	R6,99*
Sauce Peri Peri	R13,99
Balance before VAT	R193,24
EFT credit card payment	R217,28

Tax Code	Taxable	Tax value
Zero VAT	R32,99	R0,00
VAT	R160,27	R23,73
Total Tax		R23,73

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Use the above information to answer the questions that follow.

4.2.1 Some of the items are marked with an asterisk (*), give a reason. (2)

4.2.2 Show how the amount of R22,90 for ENT.Bacon/egg was calculated. (3)

4.2.3 Show, by means of calculations, whether the VAT calculations are correct or not. (4)

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TOTAL: 100

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MARKING GUIDELINES

MARCH 2026

MARKS: 75

Symbol	Explanation
M	Method
MA	Method with accuracy
CA	Consistent accuracy
A	Accuracy
C	Conversion
S	Simplification
RT	Reading from a table/graph/document/diagram
SF	Correct substitution in a formula
O	Opinion/Explanation
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 7 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 item presented.

QUESTION 1 [30 MARKS] ANSWER ONLY FULL MARKS			
Q	**Solution**	**Explanation**	**T&L**
1.1			
1.1.1	Fixed cost is an amount of money that remains constant regardless of producing or selling Cappuccino. ✓✓**O**	2O correct opinion (2)	F L1
1.1.2	Independent variable = No. of cups of Cappuccino coffee. ✓✓**A** Dependent Variable = Income in Rand ✓✓**A**	2A correct answer 2A correct answer (4)	F L1
1.1.3	Selling price = R12,50 ✓✓**A**	2A correct answer (2)	F L1
1.1.4	Income =R12,50×n ✓✓**A**	2A correct answer (2)	F L3
1.1.5	P: R12,50 × 40 ✓**A** = R500 ✓**A** **Q:** 12,50 × n = 1 250 ✓**A** $\frac{12,50 \times n}{12,50} = \frac{1\,250}{12,5}$ ✓**M** n =100 ✓**CA**	1A multiplying by 40 1A answer 1A correct substitution 1M division 1CA (5)	F L2
1.2			
1.2.1	= 2 cups × 250 ml✓ MA = 500 ml ✓**A**	1MA multiplication 1A simplification (2)	M L2
1.2.2	2:6✓**MA** 1: 3 ✓**A**	1MA correct items 1CA simplification (2)	M L2

1.2.3	6 eggs make 18 sponge cakes 72 sponge cakes will take No. of eggs = $\frac{72 \times 6}{18}$ eggs ✓**A** $= \frac{432}{18}$ ✓**A** = 24 eggs ✓**CA** **OR** No. of eggs = 72 ÷18 ✓**A** = 4 × 6 ✓**A** = 24 ✓**CA**	1A multiplication 1A numerator and denominator 1CA simplification **OR** 1A dividing by 18 1A multiplying by 6 1CA simplification (3)	M L1
1.2.4	2 × 250ℓ = 500mℓ ✓ **MA** 500mℓ ÷ 1000 = 0.5ℓ ✓**CA**	1MA method 1A conversion (2)	M L1
1.2.5	$\frac{25\ minutes}{60}$ ✓**A** = 0,4167 Hours ✓**A**	1A dividing by 60 1A conversion (2)	M L2
1.2.6	380 ºF = (1,8 × ºC) + 32✓**A** 380 - 32 = 1,8✓**MA** C = $\frac{348}{1,8}$ ✓**A** = 193.33 ºC ✓**A**	1A correct substitution 1MA correct values 1A dividing correct values 1CA simplification (4)	M L3
		[30]	

QUESTION 2 [24 marks]		Answer Only Full Marks	
Ques	**Solution**	**Explanation**	**T&L**
2.1			
2.1.1	1,2 hours = 1 hour and 0,2 of an hour = 1 hour and 0, 2 × 60 minutes. ✓**M** = 1 hour and 12 minutes ✓**A**	1M multiplying by 60 min 1A correct answer (2)	M L1
2.1.2	Time taken = 1h39min 04 sec – 1h23min 12 sec ✓**M** = 1h38 min 64 sec ✓**C** – 1h23 min 12 sec = 15 minutes 52 seconds ✓**CA**	1M subtracting correct values 1C conversion 1CA correct Answer (3)	M L2
2.2			
2.2.1	The total distance around the edge or boundary that outlines the pool.✓✓**A**	2A Definition of perimeter (2)	M L1
2.2.2	$r = \frac{5,5m}{2}$ $= 2,75\ m$ ✓**A** Length = $2(1,5\ m) + 9\ m + 2,75\ m$ $= 14,75\ m$✓**CA** For two sides = $2 \times 14,75\ m$ $= 29,5\ m$ ✓**A** Width = $2(1,5\ m) + 5,5\ m$ $= 8,5\ m$ For two sides = $2 \times 8,5\ m$ $= 17\ m$ ✓**A** Perimeter = $29.5\ m + 17\ m$ $= 46,5\ m$ ✓**CA**	1A radius 1CA length of one side 1A length of two sides 1A width of the two sides 1CA correct answer (5)	M L4
2.2.3	Number of Rolls = 46,5 m ÷ 5 ✓**M** = 9,3 = 10 rolls ✓**R** Cost of rolls = R162,50 × 10 ✓**M** = R1 625,00 ✓**CA**	1 M dividing by 5 1R rounding up 1M multiplying by R162,50 1CA answer (4)	M L3

2.2.4	No. of poles on the length = 14,75m ÷ 1,8m = 8 poles including the corner poles ✓**A** The other side of the length will have 8 poles including corner poles. No. of poles on the width = 8,5m ÷ 1,8 m = 5 poles ✓**A** The side on the width side will have 3poles in the middle because the corner poles are already counted. The other side on the width will also have 3 poles in the middle. ✓**A** Total number of poles = 2(8) + 2 (3) = 22 poles ✓**CA**	1A no. of poles on one side of the length (if a learner rounded up mark it correct) 1A No. of poles on the width (if a learner rounded down mark it correct) 1A excluding corner poles 1CA Answer (4)	M L4
2.2.5	Cheapest Cost = 3 × R500 ✓**A** + 4 × R98 ✓**A** = R1500 +R392 = R1 892✓**CA**	**CA from 2.2.4** 1A multiplying R500 by 3 1A multiplying R98 by 4 1CA answer (3)	F L2
		[24]	

QUESTION 3 [25 MARKS]

3.1			
3.1.1	Amount of space in a bucket occupied by water.✓✓**A**	2A Accept any sensible explanation. (2)	M L2
3.1.2	18,46 × 1 000 ✓**C** = 18 460 cm³ ✓**A** 18 460 ✓**SF**= 30 × 22 × *h* ✓**SF** h = $\frac{18\,460}{660}$ ✓**M** ∴ h = 28 cm ✓**CA**	1C multiplying by 1 000 1A answer 1SF for volume 1SF for length and width 1M changing subject of formula 1CA rounded answer (6)	M L4
3.1.3	Circumference = 3,142 × 44 ✓✓**SF** = 138,248 cm	2SF correct values (2)	M L1

3.2			
3.2.1	Prevents rapid loss of heat ✓✓**2O**	2O Opinion (2)	M L3
3.2.2	Radius = $\frac{44}{2}$ ✓**MA** = 22 cm ✓**A**	1MA dividing by 2 1A correct answer (2)	M L2
3.2.3	h = $\frac{380}{10}$ ✓**C** = 38 cm ✓**A** Area = 2 × 3,142 × 22 × 38 ✓**SF** = 5 253,42✓ CA cm²✓**A**	**CA radius from 3.2.2** 1C dividing by 10 1A correct answer 1SF correct values 1CA correct answer 1A correct unit **NPR** (5)	M L4
3.2.4	V = 3,142 × (22)² × 38 ✓**SF** = 57 787,66 cm³ ✓**CA**	**CA radius from Q3.2.2 and height from Q3.2.3** 1SF values CA final answer (2)	M L2
3.3	Number of buckets = $\frac{57\ 787,66}{18,46}$ ✓**MCA** ✓**A** = 3,13 ✓**CA** = 4 buckets ✓**R**	**CA from 3.2.4** 1MCA numerator 1A denominator 1CA answer 1R rounding up (4)	M L3

QUESTION 4 [21 MARKS]

Q	Solution	Explanation	T&L
4.1			
4.1.1	A plan on how Mr David will spend his money ✓✓**O**	2O explanation (2)	F L2
4.1.2	Total income = R33 150 + R1 625 ✓**MA** = R34 775 ✓**CA**	1MA addition 1CA answer (2)	F L1
4.1.3	B = R7 927,86 – (R375 + R850,25 + R1 500) ✓**MA** = R5 202,61 ✓**CA**	1MA for subtracting correct values 1CA answer (2)	F L1

4.1.4	Detergents: Electricity 375 : 1500 ✓**A**✓**M** 1 : 4 ✓**CA**	1M correct order 1A correct values 1CA answer (3)	F L2
4.1.5	Percentage of total expenses $= \frac{850,25}{7927,86}$ ✓**MA** ×100% ✓**M** = 10,72% ✓**CA**	1MA correct numerator & denominator 1M multiplying by 100% 1CA simplification (3)	F L3
4.2			
4.2.1	They are exempted from VAT/zero rated item ✓✓**A**	2RO (2)	D L2
4.2.2	ENT.Bacon/egg = R49,99 × 0,458 kg ✓**A**✓**M** = R22,89542 ✓**A** ≈ R22,90	1A correct values 1M multiplying correct values 1A simplification (2)	D L1
4.2.3	Amount including VAT = R160.27 × 1.15 = R184.3105 ✓**CA** VAT amount = R184.3105 – R160.27 ✓**MA** = R24.04 ✓**A** VAT calculations not correct✓**O**	1CA Amount incl VAT 1MA subtracting 160,27 1A simplification 1O correct statement (4) **NPR**	F L4
		[21]	

TOTAL = 100