

SMARTWIZ

GRADE 10 MATHEMATICAL LITERACY EXAM

MARKS: 100

MARKS	

TIME: 2 hours

SCHOOL _____

CLASS (e.g. 4A) _____

SURNAME _____

NAME _____

Instructions for Learners:

- Read all the instructions carefully before you begin the exam.
- Write your name and learner number clearly on the answer sheet/booklet.
- Answer all the questions unless otherwise instructed.
- Show all your work/calculations where applicable.
- Write neatly and legibly.
- Use only blue or black ink. *Do not use correction fluid or tape.*
- No electronic devices (calculators, phones, etc.) are allowed unless explicitly permitted.
- Raise your hand if you have any questions.
- Do not talk to other learners during the exam.
- Any form of cheating will lead to disqualification.

This test consists of 5 pages including the cover page.

SECTION A: BASIC CALCULATIONS & APPLICATIONS (30 MARKS)

QUESTION 1: FINANCIAL MATHS (10 marks)

Sipho earns R7 200 per month. He spends his money as follows:

- Rent: 30%
- Food: R1 800
- Transport: R900
- Savings: 10%



1.1 Calculate the amount Sipho spends on rent.

Answer: _____ (2)

1.2 How much does Sipho save every month?

Answer: _____ (2)

1.3 What percentage of Sipho's income is spent on food and transport combined?

Answer: _____ (3)

1.4 Calculate the amount of money Sipho has left after all these expenses.

Answer: _____ (3)

QUESTION 2: MEASUREMENT (10 marks)

A swimming pool is 8 m long, 4 m wide, and 2 m deep.

2.1 Calculate the volume of the pool in cubic metres.

Answer: _____ (2)

2.2 Water costs R28 per kilolitre (1 kilolitre = 1 000 litres).

How much will it cost to fill the pool completely with water? (Show all working)

Answer: _____ (4)

2.3 If the pool is only filled to 75% capacity, how many litres of water will it hold?

Answer: _____ (4)



QUESTION 3: TIME & SPEED (10 marks)

A car travels 450 km at an average speed of 90 km/h.



3.1 Calculate how long the trip takes in hours and minutes.

Answer: _____ (4)

3.2 If the car used 36 litres of petrol for the trip, calculate the average fuel consumption in litres per 100 km.

Answer: _____ (3)

3.3 The cost of petrol is R25.60 per litre. How much does the petrol for the trip cost?

Answer: _____ (3)

SECTION B: DATA HANDLING & INTERPRETATION (30 MARKS)

QUESTION 4: TABLES & GRAPHS (15 marks)

Below is a table showing the number of visitors at a museum over five days.

Day	Monday	Tuesday	Wednesday	Thursday	Friday
Visitors	80	95	120	110	145

4.1 On which day were the most visitors recorded?

Answer: _____ (1)

4.2 Calculate the average number of visitors over the five days.

Answer: _____ (3)

4.3 Draw a bar graph to represent the data above. Use the grid below.

(6)

4.4 What is the range of the data set?

Answer: _____ (2)

4.5 How many more visitors came on Friday than on Monday?

Answer: _____ (3)

QUESTION 5: MAPS & SCALE (15 marks)

The scale on a map is 1 : 50 000.

5.1 A road measures 6 cm on the map. Calculate the actual distance in km.

Answer: _____ (3)

5.2 If a hiking trail is 3.2 km long in real life, how many cm will it be on the map?

Answer: _____ (3)

5.3 The map shows a square park with a side of 5 cm. Calculate the actual area of the park in square kilometres.

Answer: _____ (4)

5.4 Give one practical use of maps with scales in everyday life.

Answer: _____ (2)

5.5 Explain what a scale of 1 : 50 000 means.

Answer: _____ (3)

SECTION C: INTEGRATED APPLICATION (40 MARKS)

QUESTION 6: COMPARING COSTS & BUDGETING (20 marks)

Thandi is comparing cellphone packages.

Package	Monthly Cost	Free Minutes	Free Data
Smart Talk	R149	100 min	500 MB
DataSaver	R129	50 min	1.5 GB
Flexi Max	R179	150 min	1 GB



6.1 Which package is cheapest per month?

Answer: _____ (1)

6.2 Which package gives the most free data?

Answer: _____ (1)

6.3 If Thandi needs at least 100 minutes and 1 GB of data, which package best suits her needs? Justify your answer.

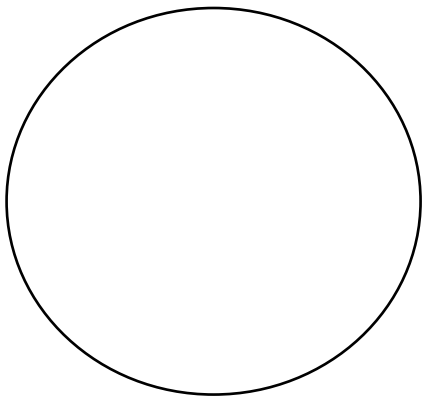
Answer: _____ (3)

6.4 She has a monthly budget of R160 for her phone. Which packages are within her budget?

Answer: _____ (2)

6.5 Create a pie chart showing the percentage of her R160 budget that would be spent on each package if she alternated between all three over 3 months.

(5)



6.6 Discuss one advantage and one disadvantage of choosing the most expensive package. (4)

6.7 Calculate the total amount she would spend on the Smart Talk package over a year.

Answer: _____ (4)

TOTAL : 100

MEMO

SECTION A: BASIC CALCULATIONS & APPLICATIONS (30 MARKS)

Question 1: Financial Maths (10 marks)

1.1 Rent = 30% of R7200 = $R7200 \times 0.30 = \mathbf{R2\ 160}$ ✓ (2)

1.2 Savings = 10% of R7200 = $R7200 \times 0.10 = \mathbf{R720}$ ✓ (2)

1.3 Food + Transport = R1800 + R900 = R2700

% of income = $(R2700 \div R7200) \times 100 = \mathbf{37.5\%}$ ✓ (3)

1.4 Total expenses = Rent + Food + Transport + Savings =
R2160 + R1800 + R900 + R720 = R5580

Remaining = R7200 – R5580 = **R1 620** ✓ (3)

Question 2: Measurement (10 marks)

2.1 Volume = $8\text{ m} \times 4\text{ m} \times 2\text{ m} = \mathbf{64\ m^3}$ ✓ (2)

2.2 $64\text{ m}^3 = 64\ 000\text{ litres} = 64\text{ kilolitres}$

Cost = $64 \times R28 = \mathbf{R1\ 792}$ ✓ (4)

2.3 75% of 64 000 litres = $0.75 \times 64\ 000 = \mathbf{48\ 000\ litres}$ ✓ (4)

Question 3: Time & Speed (10 marks)

3.1 Time = Distance \div Speed = $450 \div 90 = 5\text{ hours}$

Answer: **5 hours 0 minutes** ✓ (4)

3.2 Fuel consumption: $(36 \div 450) \times 100 = \mathbf{8\ L/100\ km}$ ✓ (3)

3.3 Cost = $36 \times R25.60 = \mathbf{R921.60}$ ✓ (3)

SECTION B: DATA HANDLING & INTERPRETATION (30 MARKS)

Question 4: Tables & Graphs (15 marks)

4.1 **Friday** ✓ (1)

4.2 Total = $80 + 95 + 120 + 110 + 145 = 550$

Average = $550 \div 5 = 110$ ✓ (3)

4.3 Bar graph (labelled correctly, scaled, accurate bars): ✓✓✓✓✓✓ (6)

4.4 Range = $145 - 80 = 65$ ✓ (2)

4.5 $145 - 80 = 65$ visitors more ✓ (3)

Question 5: Maps & Scale (15 marks)

5.1 6 cm on map = $6 \times 50\,000 = 300\,000$ cm = 3 000 m = **3 km** ✓ (3)

5.2 3.2 km = 3 200 m = 320 000 cm

Map distance = $320\,000 \div 50\,000 = 6.4$ cm ✓ (3)

5.3 Side = 5 cm = 250 000 cm = 2.5 km

Area = $2.5 \times 2.5 = 6.25$ km² ✓ (4)

5.4 Any practical use: e.g. for navigation, travel, planning hiking routes ✓ (2)

5.5 1 : 50 000 means 1 unit on the map = 50 000 units in real life ✓ (3)

SECTION C: INTEGRATED APPLICATION (40 MARKS)

Question 6: Comparing Costs & Budgeting (20 marks)

6.1 **DataSaver** – R129 ✓ (1)

6.2 **DataSaver** – 1.5 GB ✓ (1)

6.3 **Flexi Max**, because it meets both 100 min and 1 GB data requirement ✓✓✓ (3)

6.4 **Smart Talk** and **DataSaver** ✓ (2)

6.5

Smart Talk = $R149 \div R160 \times 100 = 93.13\%$

DataSaver = $R129 \div R160 \times 100 = 80.63\%$

Flexi Max = $R179 \div R160 \times 100 = 111.88\%$ (over budget – can be noted)

✓ Pie chart with correct % and labels ✓✓✓✓✓ (5)

6.6

Advantage: More minutes = more talking time

Disadvantage: Most expensive – not budget friendly ✓✓✓✓ (4)

6.7 $R149 \times 12 = \mathbf{R1\ 788}$ ✓ (4)

TOTAL : 100

