SMARTWIZ

GRADE11 MATHEMATICS LITERACY EXAM

MARKS: 100

MARKS	

TIME: 2 HOURS

SCHOOL _____

CLASS (eg. 4A) _____

SURNAME _____

NAME _____

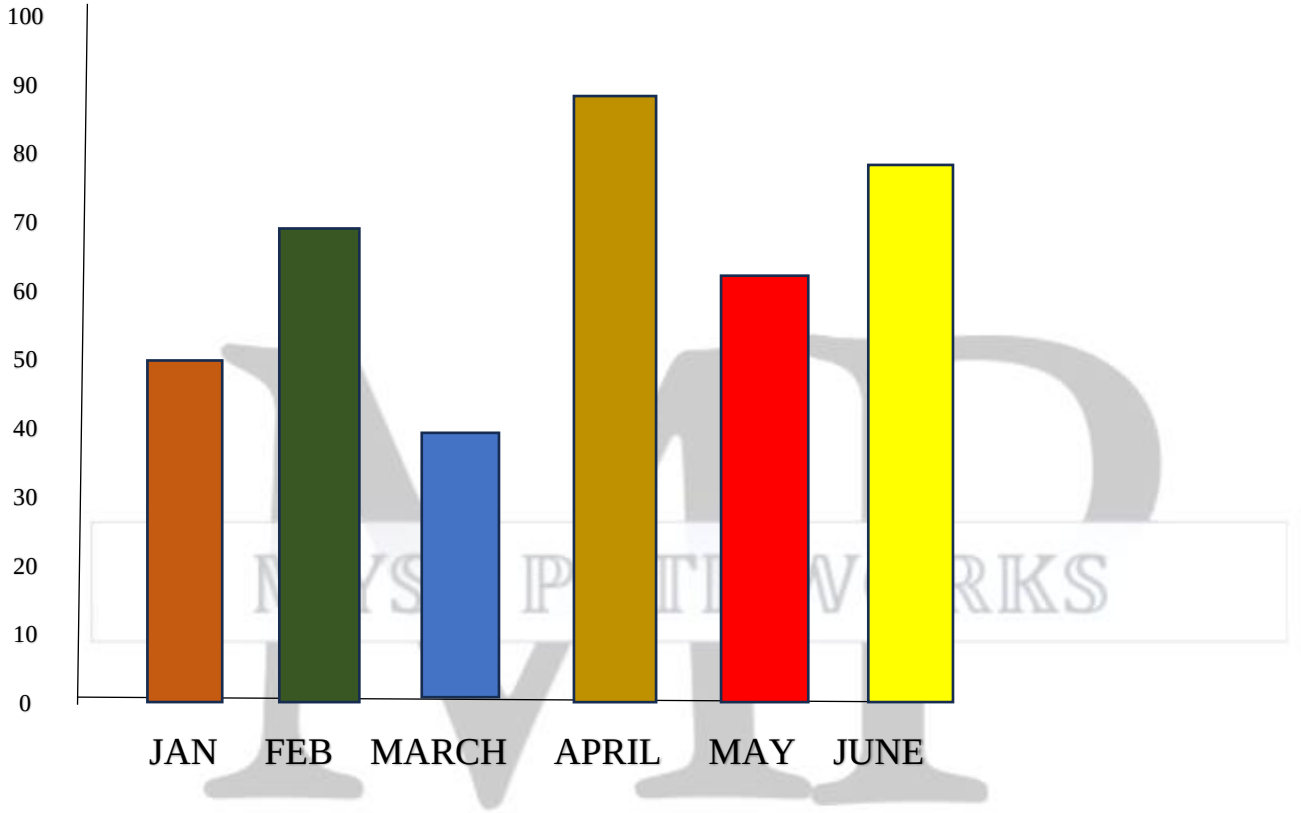
Instructions for Learners:

- Read all instructions carefully before you begin the exam.
- Write your full name and student number clearly on the answer sheet/book.
- Answer all questions unless otherwise instructed.
- Show all your work/calculations where necessary.
- Write neatly and clearly.
- Use only a blue or black pen. Do not use correction fluid or tape.
- Electronic devices (calculators, cell phones, etc.) are not 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 result in immediate disqualification from the exam.

This exam consists of six pages, including the cover page.

📊 QUESTION 1: DATA HANDLING AND PROBABILITY (20 MARKS)

1.1 Refer to the bar graph below showing the number of books borrowed from a library over six months.



1.1.1 Which month had the highest number of books borrowed?

1.1.2 Calculate the total number of books borrowed.

1.1.3 Calculate the average number of books borrowed per month.

1.2 A bag contains 5 red, 3 blue, and 2 green marbles.

1.2.1 What is the probability of picking a red marble?

1.2.2 What is the probability of picking a blue marble?

1.2.3 What is the probability of picking a green marble?

💵 QUESTION 2: FINANCIAL MATHEMATICS (20 MARKS)

2.1 Sarah invests **R15,000** in a savings account with an annual interest rate of **5%**, compounded **quarterly**.
Calculate the total amount after **2 years**.
Formula: A=P(1+rn)ntA = P(1 + \frac{r}{n})^{nt}A=P(1+nr)nt

2.2 A vehicle costs **R250,000**. A dealership offers a **10% discount**.
Calculate the sale price.

2.3 John borrows **R50,000** over **5 years** at **8% p.a.**, compounded monthly.
Calculate the **monthly repayment**.

📐 QUESTION 3: MEASUREMENT AND GEOMETRY (20 MARKS)

3.1 A rectangular pool has dimensions **25 m** by **10 m**.
Calculate the **perimeter** and **area**.

3.2 A cylindrical tank has a **radius of 3 m** and a **height of 5 m**.
Calculate the **volume** using V=πr2hV = \pi r^2 hV=πr2h, use π=3.14\pi = 3.14π=3.14.

3.3 A triangular garden has a base of **12 m** and a height of **8 m**.
Calculate the **area**.

📅 QUESTION 4: TIME AND CALENDAR CALCULATIONS (20 MARKS)

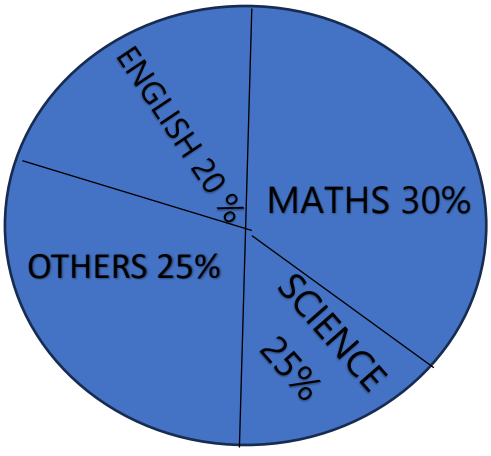
4.1 A bus departs at **14:30** and arrives at **20:45**.
Calculate the total **travel time**.

4.2 A project starts on **1 June 2025** and runs for **45 days**.
Determine the **end date**.

4.3 If today is **28 May 2025**, calculate how many days are left until **31 December 2025**.

📈 QUESTION 5: INTERPRETING GRAPHS AND TABLES (20 MARKS)

5.1 Refer to the pie chart below showing students' favourite subjects.



5.1.1 What percentage of students prefer Mathematics?

5.1.2 If there are 40 students, how many prefer Science?

5.2 Refer to the table showing electricity use:

kWh Used	Cost (R)
0–200	500
201–400	800
401–600	1,100

5.2.1 What is the cost for using **350 kWh**?

5.2.2 Calculate the **average cost per kWh** at 350 kWh.

End of Paper – Total: 100 Marks

MEMO

📊 QUESTION 1: DATA HANDLING AND PROBABILITY (20 MARKS)

1.1 (Use sample bar graph data):
Let's assume the following values:

- Jan: 50, Feb: 70, Mar: 40, Apr: 90, May: 65, Jun: 80

1.1.1 April ✔ (1 mark)
1.1.2 50 + 70 + 40 + 90 + 65 + 80 = **395 books** ✔ (2 marks)
1.1.3 395 ÷ 6 = **65.83 books** ✔ (2 marks)

1.2 Total marbles = 5 + 3 + 2 = **10**

1.2.1 Red = 5/10 = **0.5** or **50%** ✔ (2 marks)
1.2.2 Blue = 3/10 = **0.3** or **30%** ✔ (2 marks)
1.2.3 Green = 2/10 = **0.2** or **20%** ✔ (2 marks)

💵 QUESTION 2: FINANCIAL MATHEMATICS (20 MARKS)

2.1
A=P(1+rn)ntA = P(1 + \frac{r}{n})^{nt}A=P(1+nr)nt
= 15000 × (1+0.054)4×2(1 + \frac{0.05}{4})^{4×2}(1+40.05)4×2
= 15000 × (1.0125)8(1.0125)^8(1.0125)8 ≈ 15000 × 1.104486
= **R16,567.29** ✔ (5 marks)

2.2
10% of 250,000 = 25,000
Discounted price = 250,000 – 25,000 = **R225,000** ✔ (3 marks)

2.3
Use monthly compound formula:
A=P(1+rn)ntA = P(1 + \frac{r}{n})^{nt}A=P(1+nr)nt
=50000(1+0.0812)12×5= 50000(1 + \frac{0.08}{12})^{12×5}=50000(1+120.08)12×5
=50000(1.0066667)60≈50000×1.489= 50000(1.0066667)^{60} \approx 50000 ×

$1.489 = 50000(1.0066667)^{60} \approx 50000 \times 1.489$
= R74,450

Monthly repayment ≈ R74,450 ÷ 60 = **R1,240.83** ✔ (5 marks)

📐 QUESTION 3: MEASUREMENT AND GEOMETRY (20 MARKS)

3.1
Perimeter = 2(25 + 10) = 70 m ✔ (2 marks)
Area = 25 × 10 = **250 m²** ✔ (2 marks)

3.2
Volume = $\pi r^2 h$ = 3.14 × 9 × 5 = **141.3 m³** ✔ (3 marks)

3.3
Area = ½ × base × height = ½ × 12 × 8 = **48 m²** ✔ (2 marks)

🗓️ QUESTION 4: TIME AND CALENDAR CALCULATIONS (20 MARKS)

4.1
14:30 to 20:45 = 6 hours 15 mins
Answer: **6 hours 15 minutes** ✔ (3 marks)

4.2
1 June + 45 days = **16 July 2025** ✔ (3 marks)

4.3
Days left in year after 28 May = 217 days ✔
(31 May + June–Dec = 3 + 30 + 31 + 31 + 30 + 31 + 30 = 217) ✔ (4 marks)

📈 QUESTION 5: INTERPRETING GRAPHS AND TABLES (20 MARKS)

5.1.1 Maths = **30%** ✔ (1 mark)

5.1.2 25% of 40 = 0.25 × 40 = **10 students** ✔ (2 marks)

5.2.1
350 kWh = falls in 201–400 range → **R800** ✔ (2 marks)

5.2.2
Average cost = R800 ÷ 350 = **R2.29 per kWh** ✔ (2 marks)

💯 TOTAL: 100 MARKS