SMARTWIZ

GRADE 12 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 dishonesty will result in immediate disqualification from the exam.

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

QUESTION 1: BANKING AND LOANS [20 marks]

Lerato takes out a loan of R25 000 from a bank. The bank charges compound interest at 12% per annum, compounded annually.
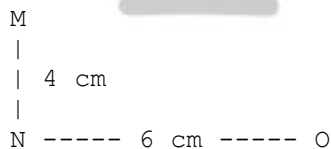
1.1 Calculate the amount she owes after 3 years. (Use $A=P(1+r)t$ $A = P(1 + r)^t$ $A=P(1+r)t$)

_____

_____

1.2 Calculate the total interest paid after 3 years.

_____

_____

1.3 If Lerato pays back the loan in 36 equal monthly payments, how much is each payment?

_____

_____

QUESTION 2: SCALE DRAWING AND MAP READING [15 marks]

The map below shows a section of a city with a scale of 1:50,000 (1 cm on the map = 50,000 cm in reality).

```
M
|
|  4 cm
|
N ----- 6 cm ----- O
```

2.1 Calculate the actual distance from M to N in kilometers.

_____

_____

2.2 Calculate the actual distance from N to O in kilometers.

_____

_____

2.3 Calculate the total distance from M to O via N.

_____

_____

QUESTION 3: WORK AND WAGES [15 marks]

Thabo is paid R120 per hour. Last week, he worked 38 hours and earned overtime at 1.5 times his hourly rate for any hours worked over 40 hours.

3.1 Calculate Thabo's earnings for last week.

3.2 If Thabo worked 45 hours the following week, calculate his total pay.

QUESTION 4: STATISTICS AND DATA INTERPRETATION [20 marks]

The table below shows the number of books read by 10 students last month:

Student	A	B	C	D	E	F	G	H	I	J
Books	4	6	3	5	7	6	5	8	4	7

4.1 Calculate the mean number of books read.

4.2 Calculate the median number of books read.

4.3 What is the mode of the data?

4.4 Create a simple frequency table of the number of books read.

QUESTION 5: PERCENTAGES AND DISCOUNTS [10 marks]

A jacket originally costs R1 200. It is on sale at a 25% discount.

5.1 Calculate the discount amount.

5.2 Calculate the sale price of the jacket.

QUESTION 6: RATES AND RATIOS [20 marks]

A recipe requires 3 cups of flour to make 12 muffins.

6.1 How many cups of flour are needed to make 30 muffins?

6.2 If you want to make 5 batches of 12 muffins each, how many cups of flour do you need?

✅ **END OF PAPER**

TOTAL : 100

MEMO

QUESTION 1: BANKING AND LOANS [20 marks]

Given:
$P = 25{,}000$,
$r = 12\% = 0.12$,
$t = 3$ years

1.1 Amount owed after 3 years (compound interest):

$$A = P(1 + r)^t = 25{,}000 \times (1.12)^3 = 25{,}000 \times 1.404928 = \boxed{R35{,}123.20}$$

1.2 Total interest paid:

$$\text{Interest} = A - P = 35{,}123.20 - 25{,}000 = \boxed{R10{,}123.20}$$

1.3 Monthly repayments over 36 months:

$$\frac{35{,}123.20}{36} = \boxed{R975.64\ \text{per month}}$$

QUESTION 2: SCALE DRAWING AND MAP READING [15 marks]

Scale: 1 cm = 50,000 cm = 500 m = 0.5 km

2.1 Distance M to N (4 cm):

$$4 \times 0.5 = \boxed{2\ \text{km}}$$

2.2 Distance N to O (6 cm):

$$6 \times 0.5 = \boxed{3\ \text{km}}$$

2.3 Total distance M to O via N:

$$2 + 3 = \boxed{5\ \text{km}}$$

QUESTION 3: WORK AND WAGES [15 marks]

Hourly rate = R120
Overtime rate = $1.5 \times 120 = R180$

3.1 Earnings for 38 hours (no overtime):

$38 \times 120 = \boxed{R4,560}$

3.2 Earnings for 45 hours:

Regular pay for 40 hours:

$40 \times 120 = 4,800$

Overtime pay for 5 hours:

$5 \times 180 = 900$

Total pay:

$4,800 + 900 = \boxed{R5,700}$

QUESTION 4: STATISTICS AND DATA INTERPRETATION [20 marks]

Books read: 4, 6, 3, 5, 7, 6, 5, 8, 4, 7

4.1 Mean:

$$\text{Sum} = 4 + 6 + 3 + 5 + 7 + 6 + 5 + 8 + 4 + 7 = 55$$
$$\text{Mean} = \frac{55}{10} = \boxed{5.5}$$

4.2 Median:

Order data: 3, 4, 4, 5, 5, 6, 6, 7, 7, 8
Median = average of 5th and 6th values = $\frac{5 + 6}{2} = 5.5$

$\boxed{5.5}$

4.3 Mode:

Most frequent numbers: 4, 5, 6, and 7 (each appears twice)
Multimodal data:

$\boxed{4,\ 5,\ 6,\ 7}$

4.4 Frequency table:

Books Read	Frequency
3	1
4	2
5	2
6	2
7	2
8	1

QUESTION 5: PERCENTAGES AND DISCOUNTS [10 marks]

Original price = R1,200
Discount = 25% = 0.25

5.1 Discount amount:

$1{,}200 \times 0.25 = \boxed{R300}$

5.2 Sale price:

$1{,}200 - 300 = \boxed{R900}$

QUESTION 6: RATES AND RATIOS [20 marks]

6.1 Cups of flour for 30 muffins:

$\frac{3}{12} = x/30 \implies x = \frac{3 \times 30}{12} = 7.5$

$\boxed{7.5\ \text{cups}}$

6.2 Cups of flour for 5 batches of 12 muffins:

$5 \times 3 = \boxed{15\ \text{cups}}$

✅ **End of memo**

TOTAL ; 100