

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: WATER TARIFFS [25 marks]

The municipality charges water tariffs as follows:

Water Usage (kL)	Rate (Rands per kL)
0 – 6	R15
7 – 15	R20
Above 15	R30

Example: If a household uses 10 kL, the cost is calculated as:

$$6 \text{ kL} \times R15 + 4 \text{ kL} \times R20 = R90 + R80 = R170.$$

1.1 Calculate the total water bill for a household that uses 18 kL.

1.2 If the household's water bill was R420, calculate how many kilolitres of water were used.

QUESTION 2: RATIOS AND PROPORTIONS [20 marks]

A paint mixture requires red paint and white paint in the ratio 3:5.



2.1 If a painter uses 12 litres of red paint, how much white paint is needed?

2.2 If the painter wants to prepare 32 litres of the paint mixture, how many litres of red paint and white paint should be used?

Red paint: _____

White paint: _____

QUESTION 3: TAX CALCULATION [15 marks]

The following tax rates apply to monthly income:

Income Range (Rands)	Tax Rate (%)
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0 – 10,000	0
10,001 – 20,000	10
Above 20,000	20

3.1 Calculate the tax payable on a salary of R25,000.

3.2 Calculate the net salary after tax if the gross salary is R18,000.

QUESTION 4: DATA INTERPRETATION [20 marks]

The Visual below shows the number of smartphones sold by a company over 4 months.

Month	Sales (units)
Jan	(10)
Feb	(16)
Mar	(14)
Apr	(9)

4.1 Which month had the highest sales?

4.2 Calculate the total number of smartphones sold over the 4 months.

4.3 Calculate the average monthly sales.

QUESTION 5: TIME CALCULATION [20 marks]

A train leaves Cape Town at 08:25 and travels to Johannesburg. The trip takes 11 hours and 50 minutes.

5.1 What time does the train arrive in Johannesburg? (Use 24-hour clock)

5.2 If the return train leaves Johannesburg at 19:40 and takes the same time to get back, what time does it arrive in Cape Town?

☒ **END OF PAPER**

TOTAL : 100



MEMO**QUESTION 1: WATER TARIFFS [25 marks]****1.1 Total water bill for 18 kL:**

- First 6 kL: $6 \times 15 = 90$ R
- Next 9 kL (7 to 15): $9 \times 20 = 180$ R
- Remaining 3 kL (above 15): $3 \times 30 = 90$ R

Total: $90 + 180 + 90 = \boxed{R360}$

1.2 Water usage if bill = R420:

Calculate cumulative costs:

- Up to 6 kL: $6 \times 15 = 90$ R
 - Up to 15 kL: $9 \times 20 = 180$ R
- Total for 15 kL = $90 + 180 = 270$ R

Remaining amount: $420 - 270 = 150$ R

At R30 per kL: $150 \div 30 = 5$ kL above 15 kL.

Total usage:

$$6 + 9 + 5 = \boxed{20 \text{ kL}}$$

QUESTION 2: RATIOS AND PROPORTIONS [20 marks]

Ratio red:white = 3:5

2.1 White paint if red = 12 litres:

$$\frac{5}{3} \times 12 = 20 \text{ litres}$$

2.2 For 32 litres total:

Sum of ratio parts = $3 + 5 = 8$ parts

Each part = $32 \div 8 = 4$ litres

- Red paint = $3 \times 4 = 12$ litres

- White paint = $5 \times 4 = 20$ litres

Red paint: 12 litres White paint: 20 litres

QUESTION 3: TAX CALCULATION [15 marks]

3.1 Tax on R25,000:

- First 10,000: no tax
- Next 10,000 (10,001 to 20,000): $10,000 \times 10\% = 1,000$
- Remaining 5,000 (above 20,000): $5,000 \times 20\% = 1,000$

Total tax: $1,000 + 1,000 = R2,000$

3.2 Net salary after tax on R18,000:

Tax on R18,000:

- First 10,000: no tax
- Next 8,000: $8,000 \times 10\% = 800$

Net salary = $18,000 - 800 = R17,200$

QUESTION 4: DATA INTERPRETATION [20 marks]

Sales units:

- Jan: 10
- Feb: 16
- Mar: 14
- Apr: 9

4.1 Highest sales month:

February (16 units)

4.2 Total sales:

$10 + 16 + 14 + 9 = 49$ units

4.3 Average monthly sales:

$$494 = 12.25 \text{ units} \times \frac{49}{4} = \boxed{12.25 \text{ units}} \quad 449 = 12.25 \text{ units}$$

QUESTION 5: TIME CALCULATION [20 marks]

5.1 Arrival time in Johannesburg:

Departure: 08:25

Trip duration: 11 h 50 min

Calculate:

$$08:25 + 11:50 = 20:15 \text{ (8:15 PM)}$$

$$20:15 \rightarrow \boxed{20:15} \rightarrow 20:15$$

5.2 Return arrival time in Cape Town:

Departure from Johannesburg: 19:40

Trip duration: 11 h 50 min

Calculate:

$$19:40 + 11:50 = 07:30 \text{ (next day)}$$

$$07:30 \rightarrow \boxed{07:30} \rightarrow 07:30$$

✓ **END OF MEMO**

TOTAL : 100