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 7 pages including the cover page.

SECTION A: FINANCIAL LITERACY & RATIOS (30 MARKS)

Question 1: Cellphone Airtime Purchases (10 marks)

1.1 Airtime bought = R10 + R20 + R29 + R50 + R100 =
_____ (2)

1.2 Total spent = R10 + R20 + R30 + R52 + R104 =
_____ (2)

1.3 Average cost per voucher = Total cost ÷ 5 =
_____ (2)

1.4 Additional cost = Total spent − Total airtime =
_____ (2)

1.5 % above R100 = (R104 − R100)/R100 × 100 =
_____ % (2)

Question 2: Exchange Rates (10 marks)

2.1 R2 000 ÷ 18.80 = _____ USD (3)

2.2 USD 100 × 19.25 = _____ ZAR (3)

2.3 Buying rate is the rate at which bank buys foreign currency, selling rate is what it sells it at.
_____ (2)

2.4 Bank profit comes from the difference (spread) between rates.
_____ (2)

Question 3: Ratios (10 marks)

3.1 Total parts = 2 + 5 + 3 = _____ (1)

3.2 Sugar = (2 ÷ 5) × 1.2 kg = _____ kg (2)

3.3 If butter = 600 g (0.6 kg), then flour = (5 ÷ 3) × 0.6 =
_____ kg (2)

3.4 Butter = 3/10 = _____ (2)

3.5 3/10 = _____ % (3)

SECTION B: MEASUREMENT & SHAPES (30 MARKS)

Question 4: Perimeter and Area (15 marks)

4.1 Area of rectangle = 12 × 8 = _____ m² (2)

4.2 Area of circle = πr² = 3.14 × 2² = _____ m² (3)

4.3 Grass area = Rectangle − Circle = _____ m² (2)

4.4 Perimeter = 2 × (12 + 8) = _____ m (2)

4.5 Fence poles = Perimeter ÷ 3 = _____ poles (3)

4.6 Reason: Save water, add beauty, etc. _____ (3)

Question 5: Volume – Boxes (15 marks)

5.1 Cube volume = 10³ = _____ cm³ (2)

5.2 Rectangular volume = 20 × 15 × 12 = _____ cm³ (3)

5.3 Difference = Larger − Smaller = _____ cm³ (2)

5.4 Surface area = 6 × 10² = _____ cm² → Cost = _____ (4)

5.5 Larger surface area = more material = more cost _____ (2)

5.6 Reduce cost by using recycled material or smaller packaging _____ (2)

SECTION C: DATA & INTERPRETATION (40 MARKS)

Question 6: Pie Chart – Transport to School (20 marks)

6.1 Total learners = _____ (1)

6.2 Fraction for taxis = _____ (1)

6.3 % for taxis = (20 ÷ 60) × 100 = _____ % (2)

6.4 Pie chart drawn with protractor using correct angles (5)

6.5 Angles:

- Walk = 15/60 × 360 = _____ °
- Taxi = 20/60 × 360 = _____ °
- Bus = 10/60 × 360 = _____ °
- Bicycle = 5/60 × 360 = _____ °
- Car = 10/60 × 360 = _____ ° (5)

6.6 Walking is free, good exercise, no transport needed
_____ (2)

6.7 Least used = Bicycle. Maybe unsafe or too far
_____ (2)

6.8 Incentives: bike parking, rewards, competitions, etc.
_____ (2)

Question 7: Histogram – Test Results (20 marks)

7.1 Modal class = _____ (1)

7.2 Histogram: correct bars and intervals (5)

7.3 Passed = 12 + 10 + 8 = _____ learners (2)

7.4 Failed = 10 → (10 ÷ 40) × 100 =
_____ % (2)

7.5 Range = 100 − 0 = _____ (2)

7.6 Poor performance: Lack of study, distractions, etc.
_____ (2)

7.7 Recommendation: More practice, support sessions
_____ (2)

7.8 Total = 4 + 6 + 12 + 10 + 8 = _____ (2)

7.9 Moderate: spread shows most learners scored in mid-range
_____ (2)

TOTAL: 100 MARKS

MEMO

SECTION A: FINANCIAL LITERACY & RATIOS (30 MARKS)

Question 1: Cellphone Airtime Purchases (10 marks)

1.1 R10 + R20 + R29 + R50 + R100 = **R209** (2)

1.2 R10 + R20 + R30 + R52 + R104 = **R216** (2)

1.3 R216 ÷ 5 = **R43.20** (2)

1.4 R216 − R209 = **R7** (2)

1.5 (104 − 100)/100 × 100 = **4%** (2)

Question 2: Exchange Rates (10 marks)

2.1 R2 000 ÷ 18.80 = **106.38 USD** (rounded to two decimal places) (3)

2.2 100 × 19.25 = **R1 925.00** (3)

2.3 Buying rate: rate bank buys foreign currency. Selling rate: rate bank sells foreign currency. (2)

2.4 The bank profits from the margin between the buying and selling rates. (2)

Question 3: Ratios (10 marks)

3.1 2 + 5 + 3 = **10** parts (1)

3.2 Sugar = (2 ÷ 5) × 1.2 = **0.48 kg** (2)

3.3 Flour = (5 ÷ 3) × 0.6 = **1.0 kg** (2)

3.4 Butter fraction = 3/10 (2)

3.5 3 ÷ 10 × 100 = **30%** (3)

SECTION B: MEASUREMENT & SHAPES (30 MARKS)

Question 4: Perimeter and Area (15 marks)

4.1 12 × 8 = **96 m²** (2)

4.2 3.14 × 2^2 = 3.14 × 4 = **12.56 m²** (3)

4.3 $96 - 12.56 =$ **$83.44\ m^2$** (2)

4.4 $2 \times (12 + 8) = 2 \times 20 =$ **40 m** (2)

4.5 $40 \div 3 =$ **13.33 → 14 poles** (round up) (3)

4.6 Reduce water usage, improve aesthetics, reduce maintenance. (any valid reason) (3)

Question 5: Volume – Boxes (15 marks)

5.1 $10^3 =$ **$1\ 000\ cm^3$** (2)

5.2 $20 \times 15 \times 12 =$ **$3\ 600\ cm^3$** (3)

5.3 $3\ 600 - 1\ 000 =$ **$2\ 600\ cm^3$** (2)

5.4 Surface Area $= 6 \times 10^2 = 6 \times 100 =$ **$600\ cm^2$** → Cost $= 600 \times 0.06 =$ **R36.00** (4)

5.5 Larger surface area means more material used, thus higher cost. (2)

5.6 Use less material, use recycled material, or change box shape. (2)

SECTION C: DATA & INTERPRETATION (40 MARKS)

Question 6: Pie Chart – Transport to School (20 marks)

6.1 15 + 20 + 10 + 5 + 10 = **60 learners** (1)

6.2 20/60 = **1/3** (1)

6.3 1/3 × 100 = **33.33%** (2)

6.4 Pie chart drawn with correct angles and labels (5)

6.5 Angles:

- Walk: 15/60 × 360 = **90°**
- Taxi: 20/60 × 360 = **120°**
- Bus: 10/60 × 360 = **60°**
- Bicycle: 5/60 × 360 = **30°**
- Car: 10/60 × 360 = **60°** (5)

6.6 Walking is free, healthy, or close distance to school. (2)

6.7 Bicycle – least used. Possible reasons: safety, distance, no bike (2)

6.8 Secure bike racks, reward schemes, competitions, etc. (any 2 valid) (2)

Question 7: Histogram – Test Results (20 marks)

7.1 40–59 is the modal class (most frequent = 12 learners) (1)

7.2 Histogram drawn with correct heights and intervals (5)

7.3 12 + 10 + 8 = **30 learners passed** (2)

7.4 10 ÷ 40 × 100 = **25% failed** (2)

7.5 Range = 100 − 0 = **100%** (2)

7.6 Lack of preparation, poor teaching, absence, etc. (any 1 valid) (2)

7.7 Provide extra classes, tutoring, revision material. (any 1 valid) (2)

7.8 4 + 6 + 12 + 10 + 8 = **40 learners** (2)

7.9 Moderate – Most learners scored 40–79%. Performance clustered in middle range. (2)

TOTAL: 100 MARKS