SMARTWIZ

GRADE 7 MATHEMATICS EXAM

MARKS: 75

MARKS	

TIME: 1 hour 30 minutes

SCHOOL_____

CLASS (e.g. 4A) _____

SURNAME_____

NAME_____

Instructions for Students:

> Read all instructions carefully before beginning the exam.

> Write your name and student ID clearly on the answer sheet/booklet.

> Answer all questions unless otherwise stated.

> Show all your work/calculations where applicable.

> Write clearly and legibly.

> Use blue or black ink only. * Do not use correction fluid/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 students during the exam.

> Any form of cheating will result in disqualification.

This test consists of 4 pages, excluding the cover page.

SECTION A: NUMBERS AND OPERATIONS (15 MARKS)

1.1 Write the number **9 204 068** in expanded form.
_____ (2)

1.2 Write the prime factors of 84 using exponents.
_____ (2)

1.3 Find the LCM of 12 and 18.
_____ (2)

1.4 Complete:
a) A multiple of 15 between 60 and 100: _____
b) A factor of 64 between 5 and 10: _____ (2)

1.5 Write these integers in descending order: –6, 3, 0, –2, –10
_____ (2)

1.6 Calculate:
a) $(-3)^2 - (-2 \times 5)$ = _____
b) $100 - [12 + (3 \times 2)]$ = _____ (3)

1.7 Round 67 489 to the nearest 10 000.
_____ (2)

SECTION B: ALGEBRA AND EQUATIONS (15 MARKS)

2.1 Simplify:
a) $4a - 2a + 3a$ = _____
b) $2(x - 3) + x$ = _____ (4)

2.2 Solve for x:
a) $5x = 45$
b) $x - 8 = 27$ (4)

2.3 Factorise:
a) $ab + 2b$ = _____
b) $6x + 3$ = _____ (2)

2.4 Complete the pattern and give the rule:
Pattern: 2, 5, 10, 17, ___, ___
Rule: _____ (3)

2.5 Write an expression for:
"Three times a number increased by seven"
_____ (2)

✏️ SECTION C: GEOMETRY AND SYMMETRY (15 MARKS)

3.1 Name the type of triangle:
a) One angle is 90°: _____
b) All three sides are different lengths: _____ (2)

3.2 Draw and label an isosceles triangle with one angle 40°.
(Use the space below)
📐

(3)

3.3 Measure the given angle (from diagram) = _____°
(Allow ±1°) (1)

3.4 Identify the lines of symmetry in the following shape:
(a regular pentagon) = _____ lines of symmetry (1)

3.5 Classify each pair of lines:
a) Two lines that never meet = _____
b) Two lines that meet at 90° = _____ (2)

3.6 Name two properties of a rhombus:

1. _____
2. _____ (2)

3.7 Complete the table:

Shape	Number of Sides	Type of Polygon
Octagon		
Triangle		

(2)

3.8 What is the sum of interior angles in a quadrilateral?
_____ (2)

📦 SECTION D: MEASUREMENT AND AREA (15 MARKS)

4.1 Convert:
a) 2,4 km = _____ m
b) 5 200 ml = _____ l (2)

4.2 Find the perimeter of a triangle with sides 6 cm, 8 cm, and 10 cm.
_____ (2)

4.3 A rectangle has an area of 120 cm². If its length is 12 cm, what is its width?
_____ (2)

4.4 A circle has a diameter of 14 cm.
Find the circumference. (Use $\pi = 22/7$)
_____ (2)

4.5 Calculate the volume of a cuboid:
Length = 10 cm, Width = 4 cm, Height = 6 cm
_____ (2)

4.6 An athlete runs 5 laps around a rectangular field 100 m long and 60 m wide.
How far does she run in total?
_____ (3)

4.7 A swimming pool is filled with water at 80 litres per minute.
How long will it take to fill 3 200 litres?
_____ (2)

🧠 SECTION E: PROBLEM SOLVING (15 MARKS)

5.1 I have R200. I spend ⅖ of it on groceries. How much do I spend?
_____ (2)

5.2 A train travels 90 km in 1,5 hours. What is its speed in km/h?
_____ (2)

5.3 Thandi buys 3 pens at R14,50 each and 2 notebooks at R21,30 each.
How much does she pay in total?
_____ (3)

5.4 A garden is 12 m long and 5 m wide.
a) What is the area of the garden?
b) If grass costs R60 per square metre, what is the total cost to cover it? (4)

5.5 Sipho earns R8 000 per month. He spends 25% on rent.
How much does he spend on rent?
_____ (2)

✅ TOTAL: 75 MARKS

MEMO :

📊 SECTION A: NUMBERS AND OPERATIONS (15 MARKS)

1.1
9 204 068 = 9 000 000 + 200 000 + 4 000 + 60 + 8 ✔ (2)

1.2
84 = $2^2 \times 3 \times 7$ ✔ (2)

1.3
LCM of 12 and 18 = **36** ✔ (2)

1.4
a) 75 or 90 ✔
b) 8 ✔ (2)

1.5
Descending: 3, 0, –2, –6, –10 ✔ (2)

1.6
a) $(-3)^2 - (-2 \times 5) = 9 - (-10) = 9 + 10 =$ **19** ✔
b) 100 – [12 + 6] = 100 – 18 = **82** ✔ (3)

1.7
67 489 rounded to nearest 10 000 = **70 000** ✔ (2)

📐 SECTION B: ALGEBRA AND EQUATIONS (15 MARKS)

2.1
a) 4a – 2a + 3a = **5a** ✔
b) 2(x – 3) + x = 2x – 6 + x = **3x – 6** ✔ (4)

2.2
a) x = 9 ✔
b) x = 35 ✔ (4)

2.3
a) b(a + 2) ✔
b) 3(2x + 1) ✔ (2)

2.4
Pattern: 2, 5, 10, 17, **26**, **37** ✓
Rule: Add consecutive odd numbers (3, 5, 7, 9…) ✓ (3)

2.5
Expression: **3x + 7** ✓ (2)

📏 SECTION C: GEOMETRY AND SYMMETRY (15 MARKS)

3.1
a) Right-angled triangle ✓
b) Scalene triangle ✓ (2)

3.2
Isosceles triangle with one angle 40° drawn ✓
(Base angles = 70° each to total 180°) ✓ ✓ (3)

3.3
Measured angle (from diagram): **As given** (±1° tolerance) ✓ (1)

3.4
Regular pentagon = **5 lines of symmetry** ✓ (1)

3.5
a) Parallel lines ✓
b) Perpendicular lines ✓ (2)

3.6

- All sides equal ✓
- Opposite angles equal ✓ (2)

3.7

Shape	Number of Sides	Type of Polygon
Octagon	8	Regular (or polygon) ✓
Triangle	3	Triangle ✓ (2)

3.8
Sum = **360°** ✓ (2)

📦 SECTION D: MEASUREMENT AND AREA (15 MARKS)

4.1
a) 2,4 km = 2 400 m ✔
b) 5 200 ml = 5,2 l ✔ (2)

4.2
6 + 8 + 10 = **24 cm** ✔ (2)

4.3
120 ÷ 12 = **10 cm** ✔ (2)

4.4
C = π × d = (22/7) × 14 = **44 cm** ✔ (2)

4.5
Volume = 10 × 4 × 6 = **240 cm³** ✔ (2)

4.6
Perimeter = 2(100 + 60) = 320 m
5 laps = 320 × 5 = **1 600 m** ✔ (3)

4.7
Time = 3 200 ÷ 80 = **40 minutes** ✔ (2)

🧠 SECTION E: PROBLEM SOLVING (15 MARKS)

5.1
⅖ × 200 = **R80** ✔ (2)

5.2
Speed = 90 ÷ 1,5 = **60 km/h** ✔ (2)

5.3
3 × R14,50 = R43,50
2 × R21,30 = R42,60
Total = **R86,10** ✔ (3)

5.4
a) Area = 12 × 5 = 60 m² ✔
b) Cost = 60 × 60 = **R3 600** ✔ (4)

5.5
25% of R8 000 = **R2 000** ✔ (2)

✅ GRAND TOTAL: 75 MARKS