# 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 5 pages, excluding the cover page.**

# 📐 SECTION A: PERCENTAGES AND RATIOS (15 MARKS)

**1.1** Write 45% as a fraction in simplest form.
_____ (2)

**1.2** Increase 240 by 25%.
_____ (2)

**1.3** A pair of shoes originally costs R600. It is now on sale for 30% off.
**a)** How much is the discount?
**b)** What is the sale price?
_____ (4)

**1.4** In a class of 36 learners, the ratio of boys to girls is 2:1.
**a)** How many boys are there?
**b)** How many girls are there?
_____ (4)

**1.5** Simplify the ratio 48:64 to its simplest form.
_____ (3)

# 🔢 SECTION B: PROBABILITY AND STATISTICS (15 MARKS)

**2.1** A bag contains 3 red, 2 blue, and 5 green marbles.
**a)** What is the probability of picking a red marble?
**b)** What is the probability of picking a blue or green marble?
_____ (4)

**2.2** The heights (in cm) of five learners are: 145, 150, 155, 150, 155
**a)** What is the mode?
**b)** What is the median?
_____ (4)

**2.3** Find the range:
_____ (1)

**2.4** Draw a stem-and-leaf plot of the following data:
67, 65, 64, 62, 61, 68, 66, 64

Stem | Leaf
_____ | _____
(3)

**2.5** Complete:
**Mean = (Sum of values) ÷ (Number of values)**
If the total is 528 and there are 12 values, what is the mean?
_____ (3)

# 📉 SECTION C: GRAPHS AND COORDINATES (15 MARKS)

**3.1** Plot the following points on a coordinate grid:
A(2, 3), B(4, –1), C(–3, –2), D(–1, 5)
(Draw axes and label quadrants clearly)
📍 Draw grid here:

(4)

**3.2** Name the quadrant for each point:
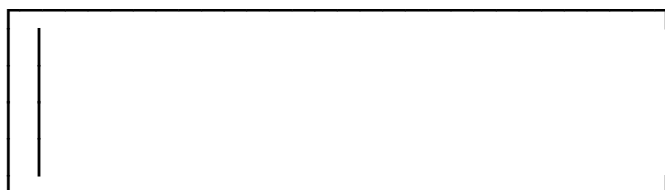A _____
B _____
C _____
D _____ (4)

**3.3** The graph below shows the number of books read by learners in a week:
(Learner A: 4 books, B: 6, C: 3, D: 5)
📊 Draw a vertical bar graph here with correct labels and scale.
(Use the box below)

(4)

**3.4** Who read the most books?
_____ (1)

**3.5** How many books were read in total?
_____ (2)

# 📦 SECTION D: MEASUREMENT AND CONVERSIONS (15 MARKS)

**4.1** Convert:
a) 3,5 kg = _____ g
b) 250 cm = _____ m
c) 1,75 l = _____ ml
_____ (3)

**4.2** A box is 12 cm long, 8 cm wide, and 5 cm high.
Find the volume of the box.
_____ (2)

**4.3** A rectangular field is 50 m long and 30 m wide.
Find the perimeter.
_____ (2)

**4.4** Calculate the area of a circle with radius 7 cm.
(Use $\pi = 22/7$)
_____ (3)

**4.5** A tank can hold 1 200 litres. If it currently holds 750 litres, what percentage of the tank is full?
_____ (3)

**4.6** Convert 2 hours and 45 minutes into minutes.
_____ (2)

# 🧮 SECTION E: WORD PROBLEMS (15 MARKS)

**5.1** Sizwe buys 3 packets of rice for R23,50 each and a loaf of bread for R17,80.
How much does he spend in total?
_____ (3)

**5.2** A car travels at 80 km/h for 3,5 hours.
What distance does it cover?
_____ (2)

**5.3** A jacket was marked down by 20%. Its original price was R850.
What is the new price?
_____ (2)

**5.4** A recipe uses ¾ cup of sugar. How much sugar is needed for 3 batches?
_____ (2)

**5.5** A rope is 5,6 metres long. It is cut into 8 equal pieces.
How long is each piece?
_____ (2)

**5.6** A cellphone costs R4 500. A 10% deposit is paid.
How much is the deposit?
_____ (2)

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## ✅ **TOTAL: 75 MARKS**

# 📐 SECTION A: PERCENTAGES AND RATIOS (15 MARKS)

**1.1**
45% = 45/100 = **9/20** ✔ (2)

**1.2**
25% of 240 = 240 × 0.25 = 60
240 + 60 = **300** ✔ (2)

**1.3**
a) 30% of R600 = R180 ✔
b) R600 – R180 = **R420** ✔ (4)

**1.4**
Ratio = 2:1 → Total parts = 3
a) (2/3) × 36 = **24 boys** ✔
b) (1/3) × 36 = **12 girls** ✔ (4)

**1.5**
48:64 → ÷16 = **3:4** ✔ (3)

# 🔢 SECTION B: PROBABILITY AND STATISTICS (15 MARKS)

**2.1**
Total marbles = 10
a) Red: 3/10 ✔
b) Blue or Green: (2 + 5)/10 = **7/10** ✔ (4)

**2.2**
Heights: 145, 150, 155, 150, 155
a) Mode = **150 and 155** (both appear twice) ✔
b) Sorted = 145, 150, 150, 155, 155 → Median = **150** ✔ (4)

**2.3**
Range = 155 – 145 = **10** ✔ (1)

**2.4**
Stem-and-leaf plot:
Stem | Leaf
6 | 1 2 4 4 5 6 7 8 ✔ (3)

**2.5**
Mean = 528 ÷ 12 = **44** ✔ (3)

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# 📈 SECTION C: GRAPHS AND COORDINATES (15 MARKS)

**3.1**
Correct plotting:
A(2, 3)
B(4, –1)
C(–3, –2)
D(–1, 5)
✔ Each correct = 1 mark (4)

**3.2**
A – Quadrant I ✔
B – Quadrant IV ✔
C – Quadrant III ✔
D – Quadrant II ✔ (4)

**3.3**
Bar graph (mark for each):

- Title ✔
- Labels ✔
- Scale ✔
- Bars ✔ (4)

**3.4**
Most books: **Learner B** ✔ (1)

**3.5**
Total books = 4 + 6 + 3 + 5 = **18 books** ✔ (2)

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# 📦 SECTION D: MEASUREMENT AND CONVERSIONS (15 MARKS)

**4.1**
a) 3,5 kg = **3 500 g** ✔
b) 250 cm = **2,5 m** ✔
c) 1,75 l = **1 750 ml** ✔ (3)

**4.2**
Volume = 12 × 8 × 5 = **480 cm³** ✔ (2)

**4.3**
Perimeter = 2 × (50 + 30) = 2 × 80 = **160 m** ✔ (2)

**4.4**
Area = πr² = (22/7) × 7 × 7 = **154 cm²** ✔ (3)

**4.5**
Percentage full = (750 ÷ 1200) × 100 = **62,5%** ✔ (3)

**4.6**
2 hours 45 minutes = 120 + 45 = **165 minutes** ✔ (2)

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# 🧮 SECTION E: WORD PROBLEMS (15 MARKS)

**5.1**
3 × R23,50 = R70,50
R70,50 + R17,80 = **R88,30** ✔ (3)

**5.2**
Distance = 80 × 3,5 = **280 km** ✔ (2)

**5.3**
20% of 850 = 170
850 – 170 = **R680** ✔ (2)

**5.4**
¾ × 3 = **2¼ cups** ✔ (2)

**5.5**
5,6 ÷ 8 = **0,7 m** ✔ (2)

**5.6**
10% of R4 500 = **R450** ✔ (2)

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## ✅ GRAND TOTAL: 75 MARKS