# MARKING GUIDELINE

| MARKS | DURATION | QUESTIONS |
|---|---|---|
| 35 | 55 minutes | 3 |

Name: ..... Class: .....

Date: .....

MARK ____ / 35

**INSTRUCTIONS AND INFORMATION**

1. Answer **ALL** the questions in this question paper.
2. Answer QUESTION 1 by **circling** the letter (A–D) in the answer grid at the end of that section.
3. Show **ALL** calculations clearly.
4. Show all units where applicable.
5. Number the answers correctly according to the numbering system used in this question paper.
6. A non-programmable calculator may be used, unless stated otherwise.
7. Write neatly and legibly.

## QUESTION 1 [10 MARKS]

Four options are given as possible answers to the following questions. Choose the correct answer and circle the letter (A–D) in the grid at the end of this section. If you want to change your choice, put a cross through the wrong letter and circle your new choice.

**1.1** Which one of the following number sentences shows the COMMUTATIVE property? (1)

**A)** $7 \times 5 = 5 \times 7$ ✓ **B)** $(7 \times 5) \times 2 = 7 \times (5 \times 2)$

**C)** $7 \times 1 = 7$ **D)** $7 \times (5 + 2) = 7 \times 5 + 7 \times 2$

**Answer: A** — Commutative means the ORDER may be swapped.

- **B** — that is the associative property — the grouping changed, not the order
- **C** — that is the identity property
- **D** — that is the distributive property

**1.2** A shop buys 4 boxes of 15 pens and 3 boxes of 12 pens. How many pens does it have altogether? (1)

**A)** 60 **B)** 75

**C)** 96 ✓ **D)** 189

**Answer: C** — $4 \times 15 + 3 \times 12 = 60 + 36 = 96$.

- **A** — multiplied only the first pair
- **B** — multiplied only the first pair and added 3 and 12
- **D** — added the boxes and the pens separately: $(4 + 3) \times (15 + 12)$

**1.3** Which one of the following is UNDEFINED? (1)

**A)** $\frac{8}{1}$

**B)** $8 \times 0$

**C)** $\frac{8}{0}$ ✓

**D)** $\frac{0}{8}$

> **Answer: C** — Dividing BY zero is undefined; dividing zero by something is simply $0$.
> - **A** — this equals $8$
> - **B** — this equals $0$
> - **D** — this equals $0$, which is defined

**1.4** A customer pays for goods costing R372 with a R500 note. What change is due? (1)

**A)** R872

**B)** **R128** ✓

**C)** R138

**D)** R228

> **Answer: B** — $500 - 372 = 128$.
> - **A** — ADDED instead of subtracting
> - **C** — subtracted the tens wrongly (borrowing error)
> - **D** — subtracted $372$ from $600$

**1.5** Estimate $297 \times 4$ by rounding to the nearest hundred first. (1)

**A)** $1\,000$

**B)** $800$

**C)** $1\,188$

**D)** **$1\,200$** ✓

> **Answer: D** — $297$ rounds to $300$, and $300 \times 4 = 1\,200$. (The exact answer is $1\,188$.)
> - **A** — rounded the ANSWER instead of the number
> - **B** — rounded $297$ down to $200$
> - **C** — that is the exact answer, not the estimate

**1.6** Which one of the following is a WHOLE number but NOT a natural number? (1)

**A)** $1$

**B)** **$0$** ✓

**C)** $\frac{1}{2}$

**D)** $-3$

> **Answer: B** — The whole numbers are $0$; $1$; $2$; $3$; ... and the natural numbers are $1$; $2$; $3$; ... — $0$ is the only difference between them.
> - **A** — $1$ is a whole number AND a natural number
> - **C** — a fraction is neither
> - **D** — $-3$ is an integer, but not a whole number

**1.7** Calculate: $40 - 6 \times 5 + 2$ (1)

**A)** $172$

**B)** $8$

**C)** $-8$

**D)** **$12$** ✓

> **Answer: D** — Multiplication first: $40 - 30 + 2 = 12$.
> - **A** — worked strictly left to right: $(40 - 6) \times 5 + 2$
> - **B** — did the addition before the subtraction: $40 - (30 + 2)$
> - **C** — subtracted $40$ from $30$ first

**1.8** A bus seats 52 people. How many buses are needed for 375 passengers? (1)

**A)** 6 **B)** 7

**C)** 7,2 **D)** **8 ✓**

> **Answer: D** — $375 \div 52 = 7$ remainder 11, and the 11 still need a bus, so 8 are needed.
> - **A** — rounded down twice
> - **B** — ignored the 11 passengers left over
> - **C** — a number of buses must be a whole number

**1.9** Which one of the following pairs of numbers has a sum of 100 and a difference of 20? (1)

**A)** 80 and 20 **B)** **60 and 40 ✓**

**C)** 50 and 50 **D)** 70 and 30

> **Answer: B** — $60 + 40 = 100$ and $60 - 40 = 20$.
> - **A** — sum is 100 but the difference is 60
> - **C** — sum is 100 but the difference is 0
> - **D** — sum is 100 but the difference is 40

**1.10** The number 4 807 is written in expanded notation as ... (1)

**A)** **4 000 + 800 + 7 ✓** **B)** 4 000 + 80 + 7

**C)** 4 + 8 + 0 + 7 **D)** 400 + 80 + 7

> **Answer: A** — The 8 is in the HUNDREDS place, and there are no tens.
> - **B** — placed the 8 in the tens column
> - **C** — added the digits instead of expanding
> - **D** — placed the 4 in the hundreds column

**ANSWER GRID — MARKING GUIDELINE**

| | | | | |
|---|---|---|---|---|
| **1.1** | (A) | B | C | D |
| **1.2** | A | B | (C) | D |
| **1.3** | A | B | (C) | D |
| **1.4** | A | (B) | C | D |
| **1.5** | A | B | C | (D) |
| **1.6** | A | (B) | C | D |
| **1.7** | A | B | C | (D) |
| **1.8** | A | B | C | (D) |
| **1.9** | A | (B) | C | D |
| **1.10** | (A) | B | C | D |

## QUESTION 2 [13 MARKS]

Answer the following questions on the properties of whole numbers. Show ALL your calculations.

**2.1** Name the property shown by $7 \times 5 = 5 \times 7$, and show by ONE example that the same property does NOT hold for subtraction. (3)

> The **commutative** property of multiplication *(1)*
> $7 - 5 = 2$ but $5 - 7 = -2$ *(1)*
> The two answers differ, so subtraction is NOT commutative *(1)*

**2.2** Use the distributive property to calculate $7 \times 98$ WITHOUT a calculator. **(3)**

> $7(100 - 2)$ *(1)*
> $= 700 - 14$ *(1)*
> $=$ **686** *(1)*

**2.3** Calculate, showing every step: $25 \times 104 - 48 \div 16$ **(4)**

> Multiplication and division first *(1)*
> $25 \times 104 = 25(100 + 4) = 2\,600$ *(1)*
> $48 \div 16 = 3$ *(1)*
> $2\,600 - 3 =$ **2 597** *(1)*

**2.4** Write down the value of $0 \div 8$, and explain why $8 \div 0$ has no answer. **(3)**

> $0 \div 8 =$ **0** *(1)*
> $8 \div 0$ is **undefined** *(1)* — no number multiplied by $0$ gives $8$ *(1)*

## QUESTION 3 [12 MARKS]

A shop buys $3$ boxes containing $15$ pens each and $4$ boxes containing $12$ pens each. Each pen is sold for R4.

**3.1** Calculate the total number of pens the shop buys. **(3)**

> $3 \times 15 = 45$ and $4 \times 12 = 48$ *(2)*
> $45 + 48 =$ **93 pens** *(1)*

**3.2** Calculate the total income if every pen is sold, and hence the profit if the shop paid R2,50 for each pen. **(4)**

> Income $= 93 \times$ R4 $=$ **R372** *(2)*
> Cost $= 93 \times$ R2,50 $=$ R232,50 *(1)*
> Profit $=$ R372 $-$ R232,50 $=$ **R139,50** *(1)*

**3.3** A customer pays for all $93$ pens with R500. Calculate the change. **(2)**

> $500 - 372$ *(1)* $=$ **R128** *(1)*

**3.4** Ann says division is commutative because $12 \div 6 = 2$. Is Ann correct? Give a reason and support it with an example. **(3)**

> **No** *(1)*
> $12 \div 6 = 2$ but $6 \div 12 = \frac{1}{2}$ *(1)*
> The answers differ, so the order matters *(1)*

**TOTAL: 35 marks**

*This question paper consists of 3 questions.*

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