# MARKING GUIDELINE

| MARKS | DURATION | QUESTIONS |
|---|---|---|
| 36 | 55 minutes | 3 |

Name: _____ Class: _____

Date: _____

MARK ____ / 36

## 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** $\frac{2}{3} + \frac{1}{4} = \ldots$ (1)

**A)** $\frac{3}{12}$ **B)** $\frac{11}{12}$ ✓

**C)** $\frac{2}{12}$ **D)** $\frac{3}{7}$

**Answer: B** — The LCD is 12: $\frac{8}{12} + \frac{3}{12} = \frac{11}{12}$.

- **A** — added the tops but kept one denominator
- **C** — multiplied instead of adding
- **D** — added the tops AND the bottoms — the commonest error of all

**1.2** $\frac{5}{6} - \frac{1}{3} = \ldots$ (1)

**A)** $\frac{4}{3}$ **B)** $\frac{2}{3}$

**C)** $\frac{4}{6}$ **D)** $\frac{1}{2}$ ✓

**Answer: D** — $\frac{5}{6} - \frac{2}{6} = \frac{3}{6} = \frac{1}{2}$.

- **A** — subtracted the bottoms as well
- **B** — subtracted the numerators without a common denominator
- **C** — forgot to change $\frac{1}{3}$ into $\frac{2}{6}$

**1.3** $1\frac{1}{2} + 2\frac{1}{3} = \ldots$ (1)

**A)** $3\frac{1}{6}$ **B)** $2\frac{5}{6}$

**C)** $\mathbf{3\frac{5}{6}}$ ✓ **D)** $3\frac{2}{5}$

> **Answer: C** — Add the wholes: 3. Then $\frac{1}{2} + \frac{1}{3} = \frac{3}{6} + \frac{2}{6} = \frac{5}{6}$.
>
> - **A** — SUBTRACTED the fractions
> - **B** — lost a whole number
> - **D** — added the tops and the bottoms of the fractions

**1.4** Before two fractions can be added, they must have ... (1)

**A) the same denominator** ✓ **B)** the same numerator

**C)** the same value **D)** whole-number parts

> **Answer: A** — Only pieces of the SAME size can be counted together.
>
> - **B** — the numerators are what you add
> - **C** — equal fractions would make the question pointless
> - **D** — whole numbers are handled separately

**1.5** A tank is $\frac{3}{8}$ full. After $\frac{1}{4}$ more is added, the tank is ... full. (1)

**A)** $\mathbf{\frac{5}{8}}$ ✓ **B)** $\frac{1}{2}$

**C)** $\frac{4}{8}$ **D)** $\frac{4}{12}$

> **Answer: A** — $\frac{3}{8} + \frac{2}{8} = \frac{5}{8}$.
>
> - **B** — guessed at a half
> - **C** — forgot to convert $\frac{1}{4}$ to $\frac{2}{8}$
> - **D** — added the tops and the bottoms

**1.6** $\frac{7}{10} - \frac{1}{5} = \ldots$ (1)

**A)** $\frac{9}{10}$ **B)** $\frac{6}{10}$

**C)** $\mathbf{\frac{1}{2}}$ ✓ **D)** $\frac{6}{5}$

> **Answer: C** — $\frac{7}{10} - \frac{2}{10} = \frac{5}{10} = \frac{1}{2}$.
>
> - **A** — ADDED the fractions instead of subtracting them
> - **B** — did not convert $\frac{1}{5}$ into $\frac{2}{10}$
> - **D** — subtracted the denominators

**1.7** Which one of the following sums is GREATER than 1? (1)

**A)** $\frac{1}{3} + \frac{1}{4}$

**B)** $\frac{2}{5} + \frac{1}{2}$

**C)** $\frac{1}{2} + \frac{1}{3}$

**D)** $\frac{3}{4} + \frac{1}{2}$ ✓

> **Answer: D** — $\frac{3}{4} + \frac{1}{2} = \frac{5}{4}$, and $\frac{5}{4}$ is more than 1.
>
> - **A** — $\frac{7}{12}$, which is less than 1
> - **B** — $\frac{9}{10}$, which is less than 1
> - **C** — $\frac{5}{6}$, which is less than 1

**1.8** The LOWEST common denominator of $\frac{1}{6}$ and $\frac{1}{8}$ is ... (1)

**A)** 48

**B)** 24 ✓

**C)** 14

**D)** 2

> **Answer: B** — 24 is the LCM of 6 and 8 — the smallest number both divide into.
>
> - **A** — $6 \times 8$ works, but it is not the LOWEST
> - **C** — added the two denominators
> - **D** — that is the HCF, not the LCM

**1.9** Thabo walks $\frac{1}{4}$ km, then $\frac{2}{3}$ km. How much further must he walk to complete 2 km? (1)

**A)** $1\frac{11}{12}$

**B)** $\frac{3}{7}$

**C)** $1\frac{1}{12}$ ✓

**D)** $\frac{11}{12}$

> **Answer: C** — $\frac{1}{4} + \frac{2}{3} = \frac{3}{12} + \frac{8}{12} = \frac{11}{12}$, and $2 - \frac{11}{12} = 1\frac{1}{12}$.
>
> - **A** — subtracted from 2 but lost a whole
> - **B** — added the tops and the bottoms
> - **D** — that is the distance already walked, not what is left

**1.10** $5 - 2\frac{3}{4} = \ldots$ (1)

**A)** $2\frac{3}{4}$

**B)** $3\frac{3}{4}$

**C)** $3\frac{1}{4}$

**D)** $2\frac{1}{4}$ ✓

> **Answer: D** — $5 = 4\frac{4}{4}$, so $4\frac{4}{4} - 2\frac{3}{4} = 2\frac{1}{4}$.
>
> - **A** — subtracted the whole numbers and copied the fraction
> - **B** — added instead of subtracting
> - **C** — borrowed but subtracted the fraction the wrong way

**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]

Calculate the following WITHOUT using a calculator. Show ALL your steps and leave your answers in the simplest form.

**2.1** $\frac{3}{4} + \frac{2}{5} - \frac{1}{2}$ **(4)**

LCD $= 20$ *(1)*

$= \frac{15}{20} + \frac{8}{20} - \frac{10}{20}$ *(2)*

$= \mathbf{\frac{13}{20}}$ *(1)*

**2.2** $2\frac{1}{3} + 1\frac{1}{2} - \frac{3}{4}$ **(5)**

Change to improper fractions: $\frac{7}{3} + \frac{3}{2} - \frac{3}{4}$ *(1)*

LCD $= 12$ *(1)*

$= \frac{28}{12} + \frac{18}{12} - \frac{9}{12}$ *(2)*

$= \frac{37}{12} = \mathbf{3\frac{1}{12}}$ *(1)*

**2.3** $\frac{5}{6} - (\frac{1}{3} + \frac{1}{4})$ **(4)**

Brackets FIRST: $\frac{1}{3} + \frac{1}{4} = \frac{7}{12}$ *(2)*

$\frac{10}{12} - \frac{7}{12}$ *(1)* $= \mathbf{\frac{1}{4}}$ *(1)*

## QUESTION 3 [13 MARKS]

Answer the word problems below. Show ALL your working.

**3.1** A water tank is $\frac{2}{3}$ full. During the day $\frac{1}{4}$ of the FULL tank is used. Determine the fraction of the tank that is left. (4)

$\frac{2}{3} - \frac{1}{4}$ *(1)*

LCD = 12: $\frac{8}{12} - \frac{3}{12}$ *(2)*

$= \mathbf{\frac{5}{12}}$ of the tank *(1)*

**3.2** Three pipes are $\frac{3}{4}\ m$, $\frac{2}{3}\ m$ and $\frac{5}{6}\ m$ long. Calculate their total length. (4)

LCD = 12 *(1)*

$\frac{9}{12} + \frac{8}{12} + \frac{10}{12}$ *(2)*

$= \frac{27}{12} = \mathbf{2\frac{1}{4}\ m}$ *(1)*

**3.3** A recipe needs $1\frac{1}{2}$ cups of sugar and $\frac{3}{4}$ of a cup of flour. Determine how much MORE sugar than flour is needed. (3)

$\frac{3}{2} - \frac{3}{4}$ *(1)* $= \frac{6}{4} - \frac{3}{4}$ *(1)* $= \mathbf{\frac{3}{4}}$ **of a cup** *(1)*

**3.4** A learner writes $\frac{1}{2} + \frac{1}{3} = \frac{2}{5}$. Explain the mistake. (2)

The learner added the numerators and the denominators *(1)*; the denominators must first be made the same *(1)*

**TOTAL: 36 marks**

*This question paper consists of 3 questions.*

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