MARKING GUIDELINE

MARKS	DURATION	QUESTIONS
30	45 minutes	3

Name: _____ Class: _____

Date: _____

MARK ____ / 30

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 Solve for x: $3x - 7 = 14$ (1)

A) 7 ✓ **B)** -7

C) 21 **D)** $2{,}33$

Answer: A — $3x = 21$, so $x = 7$.

- **B** — made the right-hand side -21 instead of 21
- **C** — forgot to divide by 3
- **D** — moved the -7 across without changing its sign: $3x = 7$

1.2 Solve for x: $2(x + 3) = 16$ (1)

A) $6{,}5$ **B)** 5 ✓

C) 13 **D)** 8

Answer: B — $x + 3 = 8$, so $x = 5$.

- **A** — multiplied only the x by 2: $2x + 3 = 16$
- **C** — did not divide by 2: $x + 3 = 16$
- **D** — forgot to subtract the 3

1.3 Solve for x: $5x - 3 = 2x + 12$ (1)

A) 3 **B)** 15

C) $1{,}8$ **D)** 5 ✓

Answer: D — $3x = 15$, so $x = 5$.

- **A** — divided 9 by 3
- **B** — forgot to divide by 3
- **C** — divided before collecting the terms

1.4 Solve for x: $\frac{x}{4} = 6$ (1)

A) 2 **B)** 10

C) 1,5 **D)** **24 ✓**

> **Answer: D** — Multiply both sides by 4.
> - **A** — subtracted 4
> - **B** — added 4
> - **C** — divided instead of multiplying

1.5 Solve for x: $-2x = 10$ (1)

A) **-5 ✓** **B)** 8

C) 5 **D)** -20

> **Answer: A** — Dividing by -2 gives -5.
> - **B** — subtracted 2 from 10
> - **C** — lost the negative sign
> - **D** — multiplied instead of dividing

1.6 When a term is moved across the equals sign, its ... (1)

A) value doubles **B)** sign stays the same

C) **SIGN changes ✓** **D)** value halves

> **Answer: C** — Moving a term is really doing the inverse operation to both sides.
> - **A** — nothing is doubled
> - **B** — if the sign stayed the same, the equation would change
> - **D** — nothing is halved

1.7 Three consecutive integers add up to 39. The SMALLEST is ... (1)

A) **12 ✓** **B)** 11

C) 13 **D)** 39

> **Answer: A** — $x + (x + 1) + (x + 2) = 39$ gives $3x = 36$, so $x = 12$.
> - **B** — $11 + 12 + 13 = 36$, not 39
> - **C** — that is the MIDDLE integer
> - **D** — that is the total, not one of the integers

1.8 Solve for x: $\frac{2x + 1}{3} = 5$ (1)

A) 2 **B)** 7,5

C) **7 ✓** **D)** 8

> **Answer: C** — $2x + 1 = 15$, so $2x = 14$ and $x = 7$.
> - **A** — ignored the 3 and solved $2x + 1 = 5$
> - **B** — halved 15 without subtracting the 1
> - **D** — ADDED the 1 instead of subtracting it

1.9 A number is doubled and 7 is added, giving 31. The number is ... (1)

A) 24 **B) 12 ✓**

C) 19 **D)** 38

> **Answer: B** — $2x + 7 = 31$, so $2x = 24$ and $x = 12$.
> - **A** — that is $2x$, not x
> - **C** — ADDED 7 instead of subtracting it, then halved: $38 \div 2$
> - **D** — ADDED 7 instead of subtracting it: $31 + 7$

1.10 If $4x = 0$, then $x = ...$ (1)

A) undefined **B)** -4

C) 4 **D) 0 ✓**

> **Answer: D** — The only number that gives 0 when multiplied by 4 is 0.
> - **A** — the equation has a perfectly good solution
> - **B** — $-4 \times 4 = -16$
> - **C** — $4 \times 4 = 16$

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 [10 MARKS]

Solve for x. Show ALL your steps.

2.1 $6x - 5 = 2x + 11$ (3)

> $6x - 2x = 11 + 5$ *(1)*
> $4x = 16$ *(1)*
> $\boldsymbol{x = 4}$ *(1)*

2.2 $5(x - 3) = 2(x + 3)$ (4)

> $5x - 15 = 2x + 6$ *(2)*
> $3x = 21$ *(1)*
> $\boldsymbol{x = 7}$ *(1)*

2.3 $10 - 3x = 1$ (3)

> $-3x = 1 - 10$ *(1)*
> $-3x = -9$ *(1)*
> $\boldsymbol{x = 3}$ *(1)*

QUESTION 3 [10 MARKS]

Solve for x, and then answer the word problem.

3.1 $\frac{x}{3} + 2 = 5$ (3)

$\frac{x}{3} = 3$ *(1)*
$x = 3 \times 3$ *(1)*
$x = 9$ *(1)*

3.2 $12 - 5x = 2x - 2$ (3)

$12 + 2 = 2x + 5x$ *(1)*
$14 = 7x$ *(1)*
$x = 2$ *(1)*

3.3 The sum of three consecutive whole numbers is 51. Set up an equation and determine the three numbers. (4)

Let the numbers be x, $x + 1$ and $x + 2$ *(1)*
$x + (x + 1) + (x + 2) = 51$ *(1)*
$3x + 3 = 51$, so $x = 16$ *(1)*
16, 17 and 18 *(1)*

TOTAL: 30 marks

This question paper consists of 3 questions.

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