Solving Linear Equations: Every Type in the Exam

MEMORANDUM

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

Date: .....

MARK ____ / 31

Answer all questions. Show all your working — marks are awarded for method as well as the final answer. **Teacher copy: accept any correct equivalent method.**

1 Solve $x + 9 = 15$ *(one-step)* (1)

$x = 15 - 9 = \mathbf{6}$ ✓ (1)

2 Solve $4x = 32$ *(one-step)* (1)

$x = 32 \div 4 = \mathbf{8}$ ✓ (1)

3 Solve $3x + 7 = 22$ *(two-step)* (2)

$3x = 15 \rightarrow x = \mathbf{5}$ ✓✓ (2)

4 Solve $5x - 4 = 21$ *(two-step)* (2)

$5x = 25 \rightarrow x = \mathbf{5}$ ✓✓ (2)

5 Solve $6x - 5 = 2x + 11$ *(both sides)* (2)

$4x = 16 \rightarrow x = \mathbf{4}$ ✓✓ (2)

6 Solve $7x + 3 = 4x + 18$ *(both sides)* (2)

$3x = 15 \rightarrow x = \mathbf{5}$ ✓✓ (2)

7 Solve $2(x + 4) = 18$ *(brackets)* (2)

$2x + 8 = 18 \rightarrow 2x = 10 \rightarrow x = \mathbf{5}$ ✓✓ (2)

8 Solve $5(x - 3) = 2(x + 3)$ *(brackets)* (3)

$5x - 15 = 2x + 6 \rightarrow 3x = 21 \rightarrow x = \mathbf{7}$ ✓✓✓ (3)

9 Solve $10 - 3x = 1$ *(negative x)* (2)

$-3x = -9 \rightarrow x = \mathbf{3}$ ✓✓ (2)

10 Solve $12 - 5x = 2x - 2$ *(negative + both sides)* **(3)**

> $12 + 2 = 2x + 5x \rightarrow 14 = 7x \rightarrow x = \mathbf{2}$ ✓✓✓ (3)

11 Solve $\frac{x}{3} + \frac{x}{6} = 3$ *(fractions)* **(3)**

> $\times 6$: $2x + x = 18 \rightarrow 3x = 18 \rightarrow x = \mathbf{6}$ ✓✓✓ (3)

12 Solve $\frac{x}{4} - 1 = 2$ *(fractions)* **(2)**

> $\frac{x}{4} = 3 \rightarrow x = \mathbf{12}$ ✓✓ (2)

13 A number doubled and then increased by 5 gives 23. Find it. *(word problem)* **(3)**

> $2x + 5 = 23 \rightarrow 2x = 18 \rightarrow x = \mathbf{9}$ ✓✓✓ (3)

14 Five less than four times a number is 27. Find it. *(word problem)* **(3)**

> $4x - 5 = 27 \rightarrow 4x = 32 \rightarrow x = \mathbf{8}$ ✓✓✓ (3)

TOTAL: 31 marks

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