

Linear Equations Mastery Check

Machine-readable answers and a teacher rubric are included in the pack.

Question 1

Solve for x: $7x - 12 = 3x + 8$

Answer: $x = 5$

Why: Subtract $3x$ from both sides to get $4x - 12 = 8$. Add 12 to both sides to get $4x = 20$. Divide by 4 to get $x = 5$.

Question 2

Solve for y: $2(y + 5) = 4y - 6$

Answer: $y = 8$

Why: Distribute 2: $2y + 10 = 4y - 6$. Subtract $2y$ from both sides: $10 = 2y - 6$. Add 6 to both sides: $16 = 2y$. Divide by 2: $y = 8$.

Question 3

Solve for z: $5z - 1 = 5z + 3$

Answer: No solution

Why: Subtract $5z$ from both sides: $-1 = 3$. This is a false statement, so there is no solution.

Rubric

Criteria	Excellent	Developing
Variable Isolation	Consistently and accurately isolates the variable term using correct inverse operations.	Attempts to isolate the variable but makes errors in applying inverse operations or combining terms.
Simplification	Correctly combines like terms and applies the distributive property without errors.	Shows some understanding of combining like terms or distribution but makes occasional errors.
Solution Accuracy	Provides the correct numerical solution or identifies special cases (no/infinite solutions) with 100% accuracy.	Arrives at an incorrect numerical solution due to calculation errors, or misidentifies special cases.

Assessment evidence is included as PDF and JSON for teacher review or LMS workflows.