One-Step and Two-Step Equation Worksheets: Inverse Operations

Rubric Key

Rubric criteria for scoring the worksheet and workspace.

Criterion	Description
1	Correctly identifies the operation(s) acting on the variable.
2	Applies the inverse operation to both sides at each step.
3	Undoes addition or subtraction before multiplication or division in two-step equations.
4	Shows a clear two-column workspace with operations and simplified lines.
5	Substitutes the solution back into the original equation to verify.
6	Handwriting is legible; x-height from baseline to midline is consistent enough to distinguish the variable, and valid alternative letter styles are accepted.

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Complete worked example / separate answer key

Solve 5x - 7 = 18 using inverse operations and show each step.

Answer: Add 7 to both sides: 5x = 25. Divide both sides by 5: x = 5. Check: 5(5) - 7 = 25 - 7 = 18, which matches the right side.

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Original tasks 1, 2, 3, 4 / complete keys

Task 1

Solve x + 9 = 14.

Answer: x = 5

Reason: Subtract 9 from both sides: x + 9 - 9 = 14 - 9, so x = 5.

Check: Substitute 5 into the original equation: 5 + 9 = 14, which is true.

Task 2

Solve 6x = 42.

Answer: x = 7

Reason: Divide both sides by 6: 6x / 6 = 42 / 6, so x = 7.

Check: Substitute 7 into the original equation: 6(7) = 42, which is true.

Task 3

Solve 2x + 5 = 17.

Answer: x = 6

Reason: Subtract 5 from both sides: 2x = 12. Divide both sides by 2: x = 6.

Check: Substitute 6 into the original equation: 2(6) + 5 = 12 + 5 = 17, which is true.

Task 4

Solve x/4 - 3 = 2.

Answer: x = 20

Reason: Add 3 to both sides: x/4 = 5. Multiply both sides by 4: x = 20.

Check: Substitute 20 into the original equation: 20/4 - 3 = 5 - 3 = 2, which is true.

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Worked example, Task 1, Task 2, Task 3, Task 4 / Substitution Checks for All 12 Equations / 1 of 2

Each check substitutes the solution into the original equation and confirms both sides are equal.

#	Substitution	Both sides equal?
1	5 + 9 = 14	Yes
2	6(7) = 42	Yes
3	11 - 4 = 7	Yes
4	18/3 = 6	Yes
5	5(7) = 35	Yes
6	8 + 12 = 20	Yes
7	2(6) + 5 = 12 + 5 = 17	Yes
8	20/4 - 3 = 5 - 3 = 2	Yes
9	3(5) + 4 = 15 + 4 = 19	Yes
10	5(5) - 7 = 25 - 7 = 18	Yes
11	12/2 - 5 = 6 - 5 = 1	Yes

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Each check substitutes the solution into the original equation and confirms both sides are equal.

#	Substitution	Both sides equal?
12	4(5) + 6 = 20 + 6 = 26	Yes

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Worked example, Task 1, Task 2, Task 3, Task 4 / Answer Key with Step-by-Step Solutions and Substitution Checks / 1 of 2

Solutions for all 12 worksheet equations. The four lesson exercises use the source answers, reasoning, and checks; the remaining eight are computed consistently with the lesson method.

#	Equation	Steps	Solution
1	x + 9 = 14	Subtract 9 from both sides: x + 9 - 9 = 14 - 9	x = 5
2	6x = 42	Divide both sides by 6: 6x / 6 = 42 / 6	x = 7
3	x - 4 = 7	Add 4 to both sides: x - 4 + 4 = 7 + 4	x = 11
4	x/3 = 6	Multiply both sides by 3: (x/3) × 3 = 6 × 3	x = 18
5	5x = 35	Divide both sides by 5: 5x / 5 = 35 / 5	x = 7
6	x + 12 = 20	Subtract 12 from both sides: x + 12 - 12 = 20 - 12	x = 8
7	2x + 5 = 17	Subtract 5 from both sides: 2x = 12. Divide both sides by 2: x = 6	x = 6
8	x/4 - 3 = 2	Add 3 to both sides: x/4 = 5. Multiply both sides by 4: x = 20	x = 20

One-Step and Two-Step Equation Worksheets: Inverse Operations

Solutions for all 12 worksheet equations. The four lesson exercises use the source answers, reasoning, and checks; the remaining eight are computed consistently with the lesson method.

#	Equation	Steps	Solution
9	3x + 4 = 19	Subtract 4 from both sides: 3x = 15. Divide both sides by 3: x = 5	x = 5
10	5x - 7 = 18	Add 7 to both sides: 5x = 25. Divide both sides by 5: x = 5	x = 5
11	x/2 - 5 = 1	Add 5 to both sides: x/2 = 6. Multiply both sides by 2: x = 12	x = 12
12	4x + 6 = 26	Subtract 6 from both sides: 4x = 20. Divide both sides by 4: x = 5	x = 5

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Source rubric / reflection

- [ ] Correctly identifies the operation(s) acting on the variable.
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- [ ] Substitutes the solution back into the original equation to verify.
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Reflection: What did you check, what did you change, and what will you try next?