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Multi Step Equations Worksheet Answer Key PDF

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Part 1: Building a Foundation

What is the first step in solving a multi-step equation?

undefined. Combine like terms

undefined. Use inverse operations

undefined. Simplify each side ✓

undefined. Check the solution

The first step is to simplify each side of the equation.

Which of the following are considered inverse operations? (Select all that apply)

undefined. Addition and Subtraction ✓

undefined. Multiplication and Division ✓

undefined. Exponentiation and Logarithms

undefined. Addition and Multiplication

Inverse operations include addition and subtraction, and multiplication and division.

Explain why it is important to perform the same operation on both sides of an equation.

Perform the same operation on both sides to maintain the equality and ensure the solution is valid.

List the steps involved in solving a multi-step equation.

1. Step 1

Simplify each side.

2. Step 2

Use inverse operations.

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3. Step 3
Isolate the variable.

The steps typically include simplifying, using inverse operations, and isolating the variable.

Which property is used to simplify the expression 3(x + 4)?

undefined. Associative Property

undefined. Distributative Property ✓

undefined. Communtative Property

undefined. Identity Property

The Distributative Property is used to simplify the expression.

Part 2: Understanding and Application

In the equation 2x + 3 = 11, which steps are needed to solve for x? (Select all that apply)

undefined. Subtract 3 from both sides ✓

undefined. Add 3 to both sides

undefined. Divide both sides by 2 ✓

undefined. Multiply both sides by 2

You need to subtract 3 from both sides and then divide by 2.

Describe how combining like terms can simplify solving multi-step equations.

Combining like terms reduces the number of terms, making the equation simpler and easier to solve.

Solve the equation: 4(x - 2) = 8. What is the value of x?

undefined. 0

undefined. 2

undefined. 4

undefined. 6 ✓

The value of x is 6 after solving the equation.

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Given the equation 5x - 3 = 2x + 9, which operations will help isolate x? (Select all that apply)

undefined. Add 3 to both sides ✓

undefined. Subtract 2x from both sides ✓

undefined. Subtract 5x from both sides

undefined. Add 2x to both sides

You can add 3 to both sides and subtract 2x from both sides to isolate x.

Solve the equation 3(x + 5) = 2x + 15 and explain each step.

The solution involves distributing, combining like terms, and isolating x.

Part 3: Analysis, Evaluation, and Creation

In the equation 2(x + 3) = x + 6, what mistake might lead to an incorrect solution?

undefined. Forgetting to distribute the 2 ✓

undefined. Combining like terms incorrectly

undefined. Not subtract x from both sides

undefined. Adding 3 to both sides

Forgetting to distribute the 2 can lead to an incorrect solution.

Analyze the equation 3x + 4 = 2x + 10. Which of the following are true? (Select all that apply)

undefined. Subtract 2x from both sides simplifies the equation ✓

undefined. Adding 4 to both sides is necessary

undefined. The solution involves only one step

undefined. The equation can be solved by isolating x ✓

Subtract 2x from both sides simplifies the equation, and the solution involves isolating x.

Analyze the steps needed to solve the equation 4x - 7 = 2(x + 3) and identify any potential errors.

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The steps include distributing and combining like terms, with potential errors in distribution.

Which equation represents a correctly solved multi-step equation?

undefined. 3(x + 2) = 3x + 6 ✓

undefined. 2x + 5 = 2(x + 2)

undefined. x/2 + 3 = 2x + 6

undefined. 4(x - 1) = 4x - 4

The equation 3(x + 2) = 3x + 6 is correctly solved.

Create a multi-step equation that has a solution of x = 5. Which of the following could be your equation? (Select all that apply)

undefined. 2x + 10 = 20 ✓

undefined. 3(x - 1) = 12

undefined. x + 4 = 9

undefined. 5x = 25 ✓

Equations like 2x + 10 = 20 and 5x = 25 have a solution of x = 5.

Design a real-world problem that can be solved using a multi-step equation, and explain how you would solve it.

A real-world problem could involve budgeting or distance, and the solution involves setting up and solving the equation.

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