Solving Multi Step Equations Worksheet

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Part 1: Building a Foundation

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

Hint: Think about the initial action you take when faced with an equation.

- ◯ Isolate the variable
- ◯ Simplify both sides of the equation
- ◯ Use the distributative property
- ◯ Check the solution

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

Hint: Think about isolating the variable.

- ◯ Isolate the variable
- ◯ Simplify both sides of the equation
- ◯ Use the distributative property
- ◯ Check the solution

Which of the following are properties of equality? (Select all that apply)

Hint: Consider the rules that govern how we can manipulate equations.

- ☐ Addition Property of Equality
- ☐ Subtraction Property of Equality
- ☐ Multiplication Property of Equality
- ☐ Substitution Property of Equality

Which of the following are properties of equality? (Select all that apply)

Hint: Consider the different operations that maintain equality.

- ☐ Addition Property of Equality

- [ ] Subtraction Property of Equality
- [ ] Multiplication Property of Equality
- [ ] Substitution Property of Equality

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

Hint: Think about maintaining balance in an equation.

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List the four main operations used in solving multi-step equations.

Hint: Think about the basic arithmetic operations.

1. What is the first operation?

2. What is the second operation?

3. What is the third operation?

4. What is the fourth operation?

Part 2: Comprehension and Application

If you have the equation 3(x + 2) = 18, what is the first step to simplify it?

Hint: Consider how to deal with the parentheses.

- ◯ Divide both sides by 3
- ◯ Subtract 2 from both sides
- ◯ Distribute the 3 into the parentheses
- ◯ Add 2 to both sides

If you have the equation 3(x + 2) = 18, what is the first step to simplify it?

Hint: Think about distributing the 3.

- ◯ Divide both sides by 3
- ◯ Subtract 2 from both sides
- ◯ Distribute the 3 into the parentheses
- ◯ Add 2 to both sides

When solving the equation 2x - 5 = 15, which steps are necessary? (Select all that apply)

Hint: Think about how to isolate the variable x.

- ☐ Add 5 to both sides
- ☐ Subtract 5 from both sides
- ☐ Divide both sides by 2
- ☐ Multiply both sides by 2

When solving the equation 2x - 5 = 15, which steps are necessary? (Select all that apply)

Hint: Consider the operations needed to isolate x.

- ☐ Add 5 to both sides
- ☐ Subtract 5 from both sides
- ☐ Divide both sides by 2
- ☐ Multiply both sides by 2

Describe how you would check if your solution to a multi-step equation is correct.

Hint: Think about substituting your solution back into the original equation.

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Solve the equation 4x + 7 = 31. What is the value of x?

Hint: Isolate x by performing inverse operations.

- ◯ 6
- ◯ 7
- ◯ 8
- ◯ 9

Solve the equation 4x + 7 = 31. What is the value of x?

Hint: Think about isolating x.

- ◯ 6
- ◯ 7
- ◯ 8
- ◯ 9

Given the equation 5(y - 3) = 20, which of the following are correct steps to solve for y? (Select all that apply)

Hint: Consider how to eliminate the parentheses and isolate y.

- [ ] Divide both sides by 5
- [ ] Add 3 to both sides
- [ ] Subtract 3 from both sides
- [ ] Multiply both sides by 5

Given the equation 5(y - 3) = 20, which of the following are correct steps to solve for y? (Select all that apply)

Hint: Consider the operations needed to isolate y.

- [ ] Divide both sides by 5
- [ ] Add 3 to both sides
- [ ] Subtract 3 from both sides
- [ ] Multiply both sides by 5

Solve the equation 2(a + 4) = 3a - 6 and explain each step you took to find the solution.

Hint: Break down the equation step by step.

Solve the equation 2(a + 4) = 3a - 6 and explain each step you took to find the solution.

Hint: Think about distributing and isolating a.

Part 3: Analysis, Evaluation, and Creation

In the equation 6z - 4 = 2z + 8, what should be your first step to isolate the variable z?

Hint: Think about how to eliminate z from one side.

- ◯ Add 4 to both sides
- ◯ Subtract 2z from both sides
- ◯ Add 2z to both sides
- ◯ Subtract 6z from both sides

In the equation 6z - 4 = 2z + 8, what should be your first step to isolate the variable z?

Hint: Think about moving terms involving z to one side.

- ◯ Add 4 to both sides
- ◯ Subtract 2z from both sides
- ◯ Add 2z to both sides
- ◯ Subtract 6z from both sides

Which of the following equations require the use of the distributative property to simplify? (Select all that apply)

Hint: Look for parentheses in the equations.

- ☐ 3(x + 5) = 15
- ☐ 4x - 2 = 10
- ☐ 2(3y - 4) = 8
- ☐ x/2 + 3 = 7

Which of the following equations require the use of the distributative property to simplify? (Select all that apply)

Hint: Consider equations with parentheses.

- ☐ 3(x + 5) = 15
- ☐ 4x - 2 = 10
- ☐ 2(3y - 4) = 8
- ☐ x/2 + 3 = 7

Analyze the equation 7x + 2 = 3x + 18. Describe the steps you would take to solve for x and why each step is necessary.

Hint: Break down the equation into manageable parts.

Analyze the equation 7x + 2 = 3x + 18. Describe the steps you would take to solve for x and why each step is necessary.

Hint: Think about isolating x and combining like terms.

Which strategies can be used to solve complex multi-step equations effectively? (Select all that apply)

Hint: Think about methods that simplify the process.

- [ ] Breaking down the equation into simpler parts
- [ ] Using a calculator for every step
- [ ] Checking each step for accuracy
- [ ] Writing down each step clearly

Which strategies can be used to solve complex multi-step equations effectively? (Select all that apply)

Hint: Consider different approaches to problem-solving.

- [ ] Breaking down the equation into simpler parts
- [ ] Using a calculator for every step
- [ ] Checking each step for accuracy
- [ ] Writing down each step clearly

Create your own multi-step equation and provide a detailed solution. Explain each step and the reasoning behind it.

Hint: Think creatively about the equation you want to create.

Create your own multi-step equation and provide a detailed solution. Explain each step and the reasoning behind it.

Hint: Think about a problem you would like to solve.