2 Step Equations Worksheet Questions and Answers PDF

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Part 1: Building a Foundation

What is the first step in solving a 2-step equation of the form ax + b = c?

Hint: Think about how to isolate the variable.

- ◯ Multiply both sides by a
- ◯ Add b to both sides
- ◯ **Subtract b from both sides ✓**
- ◯ Divide both sides by a

> The first step is to eliminate the constant term from the left side of the equation.

Which of the following are common operations used in solving 2-step equations? (Select all that apply)

Hint: Consider the basic arithmetic operations.

- ☐ **Addition ✓**
- ☐ **Subtraction ✓**
- ☐ **Multiplication ✓**
- ☐ **Division ✓**

> Common operations include addition, subtraction, multiplication, and division.

Explain in your own words what a 2-step equation is and provide an example.

Hint: Think about the structure of the equation and how to solve it.

A 2-step equation is an equation that requires two operations to isolate the variable. An example is 2x + 3 = 11.

List the two main operations typically involved in solving a 2-step equation and describe their purpose.

Hint: Consider the operations that help isolate the variable.

1. What is the first operation?

Subtract or add a constant.

2. What is the second operation?

Multiply or divide by a coefficient.

The two main operations are addition/subtraction and multiplication/division, used to isolate the variable.

Part 2: Understanding and Interpretation

In the equation 4x + 5 = 21, what is the purpose of subtractinging 5 from both sides?

Hint: Think about isolating the variable term.

- ◯ To eliminate the variable
- ◯ **To isolate the variable term ✓**
- ◯ To balance the equation
- ◯ To simplify the equation

Subtract 5 to isolate the variable term on one side of the equation.

Which of the following statements are true about verifying a solution to a 2-step equation? (Select all that apply)

Hint: Consider the steps involved in checking your work.

- [x] **Substitute the solution back into the original equation. ✓**
- [x] **Ensure both sides of the equation are equal. ✓**
- [ ] Check that the variable is isolated.
- [ ] The solution must be a whole number.

Verifying a solution involves substituting back into the original equation and checking equality.

Describe the process of solving the equation 3x - 4 = 11 and explain why each step is necessary.

Hint: Break down the steps and their significance.

The process involves adding 4 to both sides and then dividing by 3 to isolate x.

Part 3: Application and Analysis

Solve the equation 2x + 7 = 15. What is the value of x?

Hint: Isolate x by performing inverse operations.

- ○ 3
- ○ **4 ✓**
- ○ 5
- ○ 6

The value of x is found by first subtractinging 7 and then dividing by 2.

Which of the following equations are solved correctly? (Select all that apply)

Hint: Check each solution step by step.

- [ ] 5x + 3 = 18; x = 3
- [ ] 4x - 2 = 10; x = 3
- [ ] **6x + 9 = 27; x = 3 ✓**
- [ ] 7x - 5 = 16; x = 3

> Correct solutions will balance the equation when checked.

Create a real-world scenario where solving a 2-step equation would be necessary, and solve the equation.

Hint: Think about situations involving quantities and relationships.

> **A scenario could involve budgeting or measurements that require solving for an unknown.**

Part 4: Evaluation and Creation

What is the error in solving the equation 3x + 4 = 19 by subtractinging 4 and then dividing by 2?

Hint: Consider the order of operations.

- ○ Incorrect subtraction
- ○ **Incorrect division ✓**
- ○ Incorrect order of operations
- ○ No error

> The error is in the incorrect division after subtractinging 4; the next step should involve multiplying or dividing by the coefficient of x.

Analyze the following solutions and identify which ones have errors. (Select all that apply)

Hint: Check each solution against the original equation.

- [ ] **2x + 3 = 11; x = 4 ✓**
- [ ] 5x - 7 = 18; x = 5
- [ ] 4x + 6 = 22; x = 4
- [ ] **3x - 5 = 10; x = 5 ✓**

Identifying errors involves substituting back into the original equations to check for correctness.

Break down the steps involved in solving the equation 7x - 3 = 25 and explain the reasoning behind each step.

Hint: Detail each operation and its purpose.

The steps involve adding 3 to both sides and then dividing by 7 to isolate x.

If a student solved the equation 6x + 8 = 20 and found x = 2, what is the best evaluation of their solution?

Hint: Consider the correctness of the solution.

- ○ Correct, because both sides are equal
- ○ Incorrect, because the subtraction was wrong
- ○ **Incorrect, because the division was wrong ✓**
- ○ Correct, because the operations were performed correctly

The evaluation shows that the solution is incorrect because the operations were not performed correctly.

Create a 2-step equation that has a solution of x = 5. Which of the following equations meet this criterion? (Select all that apply)

Hint: Think about how to manipulate the equation to find x.

- [ ] **2x + 5 = 15 ✓**
- [ ] **3x - 5 = 10 ✓**
- [ ] 4x + 1 = 21
- [ ] **5x - 10 = 15 ✓**

> Equations that simplify to x = 5 when solved are valid.

Design a complex problem involving a 2-step equation and provide a detailed solution, explaining each step and its significance.

Hint: Consider a scenario that requires multiple steps to solve.

> **A complex problem could involve multiple variables or real-world applications requiring careful reasoning.**