Solving Two Step Equations Worksheet Questions and Answers PDF

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Part 1: Building a Foundation

What is the first step in solving the equation \(3x + 4 = 10 \)?

Hint: Think about how to isolate the variable.

- ◯ A) Divide both sides by 3
- ◯ **B) Subtract 4 from both sides ✓**
- ◯ C) Add 4 to both sides
- ◯ D) Multiply both sides by 3

> The first step is to subtract 4 from both sides.

Which of the following are inverse operations?

Hint: Consider operations that undo each other.

- ☐ **A) Addition and subtraction ✓**
- ☐ **B) Multiplication and division ✓**
- ☐ C) Addition and multiplication
- ☐ D) Subtraction and division

> Addition and subtraction, multiplication and division are inverse operations.

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

Hint: Think about maintaining balance in the equation.

Perform the same operation on both sides to keep the equation balanced and valid.

List the two main operations typically involved in solving a two-step equation.

Hint: Think about the operations used to isolate the variable.

1. First operation

Addition or subtraction

2. Second operation

Multiplication or division

The two main operations are addition/subtraction and multiplication/division.

Part 2: Understanding and Interpretation

In the equation \(5x - 7 = 18 \), what operation should be performed first?

Hint: Consider how to isolate the variable.

- ◯ **A) Add 7 to both sides ✓**
- ◯ B) Subtract 7 from both sides
- ◯ C) Divide both sides by 5
- ◯ D) Multiply both sides by 5

> The first operation is to add 7 to both sides.

Which of the following statements are true about two-step equations?

Hint: Think about the characteristics of these equations.

- [ ] A) They always have a variable on both sides.
- [ ] **B) They require two operations to solve. ✓**
- [ ] C) They can be solved by guessing the value of the variable.
- [ ] **D) They can represent real-world problems. ✓**

> Two-step equations require two operations to solve and can represent real-world problems.

Describe how solving a two-step equation is similar to solving a real-world problem.

Hint: Think about the steps involved in both processes.

> **Both processes involve isolating a variable and applying logical reasoning to find a solution.**

Part 3: Application and Analysis

Solve the equation \(4x + 5 = 21 \). What is the value of \(x \)?

Hint: Isolate the variable by performing inverse operations.

- ○ A) 3
- ○ **B) 4 ✓**
- ○ C) 5
- ○ D) 6

> The value of x is 4.

Which of the following are correct solutions for the equation \(2x - 3 = 7 \)?

Hint: Solve the equation to find the correct values.

- [x] **A) \(x = 5 \) ✓**
- [ ] B) \(x = 2 \)
- [ ] C) \(x = 10 \)
- [ ] D) \(x = 3 \)

> The correct solution is x = 5.

A recipe requires \(3x + 2 \) cups of flour to make 10 cookies. If you have 8 cups of flour, how many cookies can you make?

Hint: Set up an equation based on the information given.

> **You can make 8 cookies with the available flour.**

If \(7x + 2 = 30 \), what is the relationship between the operations needed to solve for \(x \)?

Hint: Think about the order of operations.

- ○ A) Addition and division
- ○ B) Subtraction and multiplication
- ○ **C) Subtraction and division ✓**
- ○ D) Addition and multiplication

> The operations needed are subtraction and division.

Explain how the process of solving \(5x + 3 = 18 \) changes if the equation is modified to \(5x - 3 = 18 \).

Hint: Consider how the operations differ in each case.

The process changes in the first step; you would add 3 instead of subtract.

Part 4: Evaluation and Creation

Evaluate the solution to the equation \(8x + 5 = 37 \). What is the correct value of \(x \)?

Hint: Isolate the variable to find the solution.

- ◯ **A) 4 ✓**
- ◯ B) 5
- ◯ C) 6
- ◯ D) 7

The correct value of x is 4.

Evaluate the following solutions for the equation \(3x - 9 = 12 \). Which are correct?

Hint: Solve the equation to find the correct values.

- ☐ **A) \(x = 7 \) ✓**
- ☐ **B) \(x = 6 \) ✓**
- ☐ C) \(x = 5 \)
- ☐ D) \(x = 4 \)

The correct solution is x = 7 and x = 6.

Create a real-world scenario that can be represented by the equation \(2x + 6 = 20 \). Describe the scenario and solve the equation.

Hint: Think about a situation involving quantities.

A possible scenario could involve budgeting or shopping.

Propose two different two-step equations that have the solution \(x = 3 \).

Hint: Think about how to structure the equations.

1. First equation

\(2x + 4 = 10 \)

2. Second equation

\(5x - 12 = 3 \)

Examples could include \(2x + 4 = 10 \) and \(5x - 12 = 3 \).