

## Rules for Solving Linear Equations in One Variable

### A. Choose the Correct Answer:

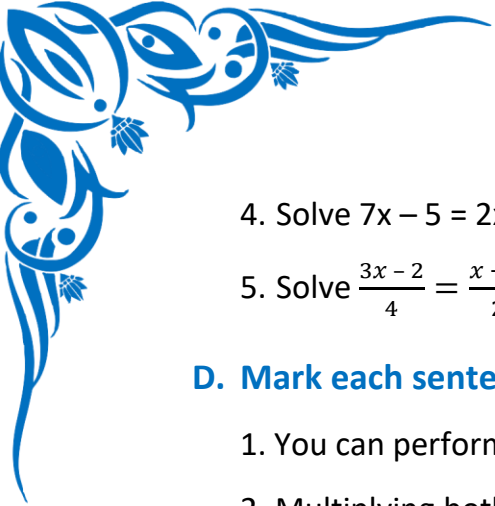
- If we add the same number to both sides of an equation, the solution:**
  - Changes
  - Remains the same
  - Doubles
  - Becomes Zero
- If we subtract the same number from both sides of an equation, the balance of the equation:**
  - Breaks
  - Remains unchanged
  - Reverses
  - Becomes half
- To solve  $2x - 5 = 9$ , the first step is:**
  - Add 5 to both sides
  - Subtract 5 from both sides
  - Multiply both sides by 2
  - Divide both sides by 2
- If  $4x = 12$ , to solve for  $x$ , we should:**
  - Add 4 to both sides
  - Subtract 4 from both sides
  - Multiply both sides by 4
  - Divide both sides by 4
- The first rule of solving a linear equation is:**
  - Multiply different numbers on both sides
  - Perform same operation on both sides
  - Only add numbers
  - Only subtract numbers

### B. Write the Missing Terms to Complete the Sentences:

- Adding or subtracting the same number from both sides of an equation \_\_\_\_\_ the balance
- Multiplying or dividing both sides of an equation by the same non-zero number \_\_\_\_\_ the solution
- To isolate the variable, we \_\_\_\_\_ the same number on both sides
- When solving equations, we perform \_\_\_\_\_ operations on both sides
- Division by \_\_\_\_\_ is not allowed in solving equations

### C. Figure out the answers to these questions:

- Solve  $5x + 2 = 17$  using proper steps
- Solve  $\frac{x - 4}{3} = 5$  using the rules of solving equations
- Solve  $2(x + 3) = 4x - 6$



4. Solve  $7x - 5 = 2x + 10$

5. Solve  $\frac{3x - 2}{4} = \frac{x + 1}{2}$

**D. Mark each sentence with a True (✓) or False (X):**

1. You can perform different operations on both sides of an equation. \_\_\_\_\_
2. Multiplying both sides of an equation by the same non-zero number keeps the equality. \_\_\_\_\_
3. Dividing both sides of an equation by 0 is allowed. \_\_\_\_\_
4. The goal of solving an equation is to isolate the variable. \_\_\_\_\_
5. In a linear equation, it is necessary to maintain the balance after every operation. \_\_\_\_\_

**E. Challenge yourself with these questions:**

1. Solve  $\frac{2x + 5}{3} = \frac{x - 2}{2}$

2. Solve  $6x - 7 = 3x + 5$

3. Solve  $4(x - 2) = 2(x + 6)$

4. Solve  $8x + 3 = 5x - 12$

5. Solve  $\frac{3x - 1}{5} = \frac{2x + 4}{3}$