Solve for the Unknown: Equation Practice Mix

Date Created: August 4, 2026
kaizly.com

Lesson:

Read the lesson first, then work through the practice set. You will solve equations with the variable on one side and equations with the variable on BOTH sides, and you will meet all three possible outcomes: exactly one solution, no solution, or infinitely many solutions. Show every balancing step, and check each answer by putting it back into the original equation.

Do 4x + 6 and 4x + 10 ever meet?

	4x + 6	4x + 10
x = 0	6	10
x = 1	10	14
x = 2	14	18
x = 3	18	22

The two sides stay exactly 4 apart, so no value of x makes them equal.

Variables on BOTH sides

Here x sits on both pans. Take 2x off both sides first, then finish as in Example 2.

Balance the equation

3x + 4 = 19 — the same equation worked step by step in Example 1.

What "distribute" really means

2(x + 4)

Two groups of (x + 4): 2 x-tiles and 8 units, so 2x + 8. BOTH terms get multiplied — the same is true when the second term is negative.

A linear equation in one variable is a number sentence with one letter, such as x, that stands for an unknown number. To solve it, keep the equation balanced by doing the same operation to both sides. Each move should undo the operation attached to the variable until the letter is alone.

Think of a balance scale: if one side changes, the other side must change in the same way. For example, if 3x + 4 = 19, subtract 4 from both sides, then divide both sides by 3. The equation stays balanced at every step, and the final value tells you the unknown number.

Examples:

Example 1: 3x + 4 = 19 -> subtract 4 from both sides: 3x = 15 -> divide both sides by 3: x = 5.

Example 2: 5x + 2 = 2x + 11 -> subtract 2x from both sides: 3x + 2 = 11 -> subtract 2: 3x = 9 -> divide by 3: x = 3.

Instructions:

Answer each question in the space provided.

1. Solve for x: 2x + 5 = 17.

Answer: _____

2. A student solved 4x - 3 = 13 like this: 4x = 10, so x = 2.5. What is the correct value of x?

Answer: _____

3. A ticket package costs $9 plus $4 per ticket. The total is $29. How many tickets were bought?

Answer: _____