

Algebra: Solving Two-Step Linear Equations



Use the matching sheet ID when checking answers.

Part A: Solve each linear equation. Show algebraic inverse operations and select the correct solution.

1. Solve for x in the equation: $4x - 17 = 35$

Answer: B. $x = 13$

Step 1: Add 17 to both sides: $4x = 35 + 17 = 52$. Step 2: Divide both sides by 4: $x = 52 \div 4 = 13$.

2. An equipment rental company charges a fixed reservation fee of \$25 plus \$18 per hour of use. If Liam's total rental invoice was \$115, which equation models this scenario, and how many hours h did Liam use the equipment?

Answer: B. $18h + 25 = 115$; $h = 5$ hours

The cost equation is $18h + 25 = 115$. Subtract 25: $18h = 90$. Divide by 18: $h = 90 \div 18 = 5$ hours.

3. Solve the fractional linear equation: $(y / 3) + 8 = 14$

Answer: A. $y = 18$

Subtract 8 from both sides: $y / 3 = 14 - 8 = 6$. Multiply both sides by 3: $y = 6 \times 3 = 18$. Check: $(18 / 3) + 8 = 6 + 8 = 14$.

Part B: Step-by-Step Inverse Operation Fluency. Fill in the missing numerical value for each algebraic transformation.

1. For $5x + 15 = 55$, subtracting 15 gives $5x = 40$; then dividing by 5 yields $x = 8$ as the exact solution.

2. In the equation $3(k - 2) = 15$, distributing gives $3k - 6 = 15$; adding 6 gives $3k = 21$, so $k = 7$ is the single root.

3. Solving $(w / 4) - 2 = 4$, first add 2 to both sides to get $w / 4 = 6$; multiplying by 4 results in $w = 24$.

4. When solving $-2m + 10 = 20$, subtract 10 to obtain $-2m = 10$; dividing by -2 gives $m = -5$.