Notes & Steps

Key idea

Move variable terms to one side and constants to the other. Then solve.

Example 1: basic

Solve $3x = 2x + 5$.
Step 1: Move $2x$ (subtract from both sides)

$$3x - 2x = 2x + 5 - 2x$$

$$x = 5$$

Check: $3 \times 5 = 2 \times 5 + 5 = 15$

Example 2: with brackets

Solve $5x - 3 = 2x + 9$.
Step 1: Move $2x$ (subtract from both sides)

$$5x - 3 - 2x = 2x + 9 - 2x$$

$$3x - 3 = 9$$

Step 2: Add 3

$$3x = 12$$

Step 3: Divide by 3

$$x = 4$$

Check: $5(4) - 3 = 2(4) + 9 = 17$

Example 3: variable on right

Solve $15 - 2a = 4a + 3$.
Step 1: Move $-2a$ (add $2a$ to both)

$$15 = 6a + 3$$

Step 2: Subtract 3

$$12 = 6a$$

Step 3: Divide by 6

$$2 = a$$

Check: $15 - 2(2) = 4(2) + 3 = 11$

Example 4: negative variable

Solve $20 - 5n = 3n + 4$.
Step 1: Move $-5n$ (add $5n$)

$$20 = 8n + 4$$

Step 2: Subtract 4

$$16 = 8n$$

Step 3: Divide by 8

$$2 = n$$

Check: $20 - 5(2) = 3(2) + 4 = 10$

Try these

1. $3x = 2x + 5$
2. $5a - 3 = 2a + 9$
3. $15 - 2m = 4m + 3$
4. $20 - 5n = 3n + 4$

Common mistake

Forgetting to move the sign. When moving $2x$ from $3x = 2x + 5$, subtract $2x$ from both sides (not add). Keep track of positive/negative signs.