SKILL #12

CODE: ALG.5

Solving Two-Steps Equations

Core Concept

A two-step equation requires two operations to solve.

Your goal is still the same: isolate the variable using inverse operations, but now you do it in two moves!

The Strategy (2 Steps)

1. Undo addition or subtraction
2. Undo multiplication or division

Always undo the constant first, then the coefficient.

Examples

Equation	Step 1	Step 2	Solution
$2x + 3 = 11$	Subtract 3 --> $2x = 8$	Divide both sides by 2 --> $x = 4$	$x = 4$
$\frac{x}{4} - 7 = -2$	Add 7 --> $\frac{x}{4} = 5$	Multiply both sides by 4 --> $x = 20$	$x = 20$
$-3x + 2 = -4$	Subtract 2 --> $-3x = -6$	Divide both sides by -3 --> $x = 2$	$x = 2$
$\frac{x}{2} + 5 = 2$	Subtract 5 --> $\frac{x}{2} = -3$	Multiply both sides by 2 --> $x = -6$	$x = -6$

Why This Skill Matters

- It's the gateway to solving any algebraic equation
- Teaches order of operations in reverse
- Real-life formulas and multi-step problems often rely on it

Common Mistakes to Avoid

❌ Trying to divide first before removing the constant

❌ Forgetting to apply the inverse operation correctly

❌ Mismanaging negative signs or fractions

❌ Not checking the answer by plugging it back in

Crack the Lock!

Each equation you solve gives you one digit of the code.

1) $5 - 2x = 9$
2) $\frac{x}{2} + 5 = 8$
3) $-\frac{x}{3} + 4 = 3$
4) $15x - 30 = 15$

_ _ _

Additional Resources

By: SALAH ALKMALI