SKILL #13

CODE: ALG.6

Solving Two-Steps Inequalities

Core Concept

A two-step inequality is just like a two-step equation — but instead of solving for equal values, you're solving for a range of possible values using inequality signs ($<, >, \leq, \geq$).

The Strategy (2 Steps)

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

Just like with equations — BUT remember to FLIP the sign When you multiply or divide by negative.

Examples

Inequality	Step 1	Step 2	Solution Graph
$2x + 3 > 11$	Subtract 3 --> $2x > 8$	Divide both sides by 2 --> $x > 4$	
$\frac{x}{4} - 3 \leq -2$	Add 3 --> $\frac{x}{4} \leq 1$	Multiply both sides by 4 --> $x \leq 4$	
$-3x + 2 < -4$	Subtract 2 --> $-3x < -6$	Divide both sides by -3 --> $x > 2$	
$\frac{x}{2} + 5 \geq 2$	Subtract 5 --> $\frac{x}{2} \geq -3$	Multiply both sides by 2 --> $x \geq -6$	

Why This Skill Matters

- Solves real-life problems with limits
- Trains logical thinking
- Prepares you for graphing and data

Common Mistakes to Avoid

❌ Forgetting to flip the sign when dividing by a negative

❌ Mixing up inequality symbols.

❌ Misunderstanding the position of the variable and reading the inequality backward:

$3 < x + 2$ is the same as $x + 2 > 3$ (flip everything)

Check yourself

Solve the following inequalities:

1) $2x - 3 \geq 5$
2) $\frac{x}{2} + 5 < 3$
3) $-\frac{x}{3} + 4 \leq 3$
4) $6 - 2x > 6$

Resource Links

By: SALAH ALKMALI https://sanwaralkmali.github.io/