

Algebra 1
Multi-Step Inequalities

Solving Multi-Step Linear Inequalities | A1-U03-P05
96 problems · Four activity formats

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Topic focus
Across 96 tasks this topic asks for classified solution set with net-coefficient reasoning and classified solution set with net-coefficient reasoning; justified method selection.
8 PDFs and a README; 49 buyer pages.

Algebra 1

Multi-Step Inequalities

Name: _____ Date: _____ Class: _____

Answer each question and record the matching bank letter. Give exact values. A value without its unit is not a complete answer.

Solve $1.5(x + 2) < 0.5(x + 8)$. _____ Bank label: _____	Solve the strict decimal identity. The inequality is $1.2(5x - 1) > 6x - 1.2$. _____ Bank label: _____
Solve $2x + 7 > 4x - 1$. _____ Bank label: _____	Solve $0.05(20x + 4) > 0.2x + 1.8$. _____ Bank label: _____
Solve $2(x + 3) - 3(x - 1) > 4(1 - x)$. _____ Bank label: _____	Solve $-1.2x + \frac{3}{5} \leq 0.4x - \frac{13}{5}$. _____ Bank label: _____
Solve $-2x + 3 < -5x + 18$. _____ Bank label: _____	Find all x satisfying $5 - 2(x + 1) > x - 6$. _____ Bank label: _____

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Answer each question and show your reasoning in the workspace. Give exact values rather than decimals unless the question supplies a decimal. A value without its unit is not a complete answer.

Construct a strict both-side inequality true for every x. Use these original construction conditions: equal variable coefficients; strict true constants.	Construct a strict both-side inequality with empty solution set. Use these original construction conditions: identical expressions; strict symbol.
Construct a fraction inequality whose integer solutions are $n \geq 2$. Use these original construction conditions: fraction coefficients; real boundary $\frac{3}{2}$; strict.	For integer n, classify the inequality. The inequality is $3n + 5 \leq 3(n + 2)$.
Determine all a-cases. The inequality is $(a - 1)x + a > 2x + 5$.	Construct a time inequality giving $0 \leq t \leq 6$. Use these original construction conditions: t nonnegative; closed upper bound; variable both sides. The target set is $0 \leq t \leq 6$ hours.

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Evaluate the supplied statement or method. Say whether it is correct, repair it if it is not, and verify the result exactly. Not every prompt contains an error.

For all a , compare the two reduced routes including $a = 3$.

The inequality is $ax + 1 < 3x + 7$. Supplied route A: $(a - 3)x < 6$. Supplied route B: $(3 - a)x > -6$.

For integer n , compare the routes through the domain step.

The inequality is $5n + 1 > 2n + 10$. Supplied route A: $3n > 9$. Supplied route B: $-9 > -3n$.

Explain why the routes point to the same closed ray.

The inequality is $-x + 4 \leq 2x + 4$. Supplied route A: $-3x \leq 0$. Supplied route B: $0 \leq 3x$.

Relate the positive- and negative-net routes.

The inequality is $7x + 1 \leq 3x + 13$. Supplied route A: $4x \leq 12$. Supplied route B: $-12 \leq -4x$.

Multi-Step Inequalities

Full Worked Solutions - excerpt

Worked example

Problem. Solve $0.07x + 0.12 > 0.02x + 0.32$.

Answer. The result is $x > 4$.

Explanation and check.

Subtract $0.02x$ and 0.12 : $0.05x > 0.20$.

Worked example

Problem. Construct a strict both-side inequality true for every x .

Use these original construction conditions: equal variable coefficients; strict true constants.

Answer. Use $5x - 2 < 5x + 7$.

Explanation and check.

Cancellation leaves $-2 < 7$.