

SKILL #11

CODE: ALG.4

Solving One-Step Inequalities

**Core Concept**

An inequality is a mathematical statement that compares two expressions using an inequality symbol ($<$, $>$, \leq , \geq).

Solving an inequality means finding the values of the variable that make the inequality true.

Golden Rule

You solve inequalities just like equations, but:

MUST REMEMBER

When you multiply or divide BOTH sides by a **NEGATIVE** number, you **MUST FLIP** the inequality sign.



One-Step Inequality Examples Table

Example	Solution	Explanation	Answer Range	Important Notes
$x + 2 > 5$	$x > 3$	Subtract 2 from both sides	x is any number greater than 3	♦ 3 is not included
$x - 4 \leq 7$	$x \leq 11$	Add 4 for both sides	x is 11 or any number less than 11	✓ 11 is included (\leq)
$3x < 18$	$x < 6$	Divide both sides by 3	x is any number less than 6	♦ 6 is not included
$x \div 5 \geq 2$	$x \geq 10$	Multiply both sides by 5	x is 10 or any greater number	✓ 10 is included (\geq)
$-2x > 6$	$x < -3$	Divide both sides by -2	x is any number less than -3	⚠ Sign flipped because of division by negative
$-\frac{x}{2} \leq -7$	$x \geq 14$	Multiply both sides by -2	x is -14 or any greater number	14 is included; sign flipped

**Common Mistakes to Avoid**

- ✗ Forgetting to flip the sign when dividing by a negative
- ✗ Treating inequality like an equation and writing “=”
- ✗ Misunderstanding the position of the variable and reading the inequality backward:
 $3 < x + 2$ is the same as $x + 2 > 3$ (flip everything)

Graphing Your Answer

Use an Open Circle for $<$ and $>$

(The number itself is NOT included)



Use a Closed Circle for \leq and \geq

(The number itself IS included)

**Additional Resources**