NAME _____ DATE _____ PERIOD _____

Lesson 6 - Solve Inequalities by Addition or Subtraction

Solving an inequality means finding values for the variable that make the inequality true. You can use the Addition and Subtraction Properties of Inequality to help solve an inequality. When you add or subtract the same number from each side of an inequality, the inequality remains true.

> IS GREATER THAN 3 > 2

≥ IS GREATER THAN OR EQUAL TO

< IS LESS THAN 2 < 3

≤ IS LESS THAN OR EQUAL TO

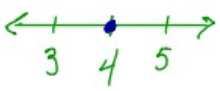
Examples

Solve each inequality.

1

$x + 4 > 9$	Write the inequality.
$x + 4 - 4 > 9 - 4$	Subtract 4 from each side.
$x > 5$	Simplify.

$x = 4$



Any number greater than 5 will make the statement true. Therefore, the solution is $x > 5$.

2

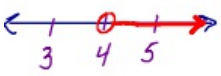
$-12 \geq n - 9$	Write the inequality.
$-12 + 9 \geq n - 9 + 9$	Add 9 to each side.
$-3 \geq n$	Simplify.

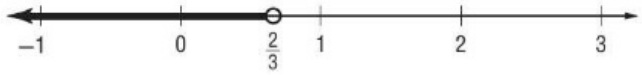
$x > 4$

The solution is $-3 \geq n$ or $n \leq -3$.

3 **Solve $a + \frac{1}{3} < 1$. Graph the solution set on a number line.**

$a + \frac{1}{3} < 1$	Write the inequality.
$a + \frac{1}{3} - \frac{1}{3} < 1 - \frac{1}{3}$	Subtract $\frac{1}{3}$ from each side.
$a < \frac{2}{3}$	Simplify.





Exercises

Solve each inequality.

1. $t - 6 > 3$

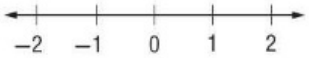
2. $b + 9 \leq 2$

3. $8 < r - 9$

4. $-4 < p + 4$

Solve each inequality. Graph the solution set on a number line.

5. $s + 8 < 9$



6. $-3 \leq d - 2$