

Inequalities

$< =$ <u>less than</u> For example, $4 < 9$ Circle one: ● or ○	$> =$ <u>greater than</u> For example, $6 > 3$ Circle one: ● or ○
$\leq =$ <u>less than or equal to</u> For example, $7 \leq 14$ or $8 \leq 8$ Circle one: ● or ○	$\geq =$ <u>greater than or equal to</u> For example, $9 \geq 2$ or $5 \geq 5$ Circle one: ● or ○

Open vs. Closed Circle - What's the Difference?

● = on a number line, the point IS included in the solution $x < 4, x \neq 4$
 ○ = on a number line, the point IS NOT included in the solution

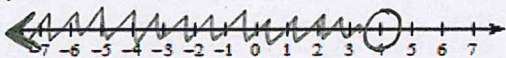
What happens to the inequality sign when you add or subtract a negative #? Nothing / No change.
 What happens to the inequality sign when you multiply or divide by a negative #? The sign is reversed.

To solve an inequality means...

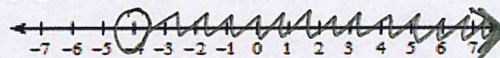
to determine the values of the variable that make the inequality true.

Draw a graph for each inequality.

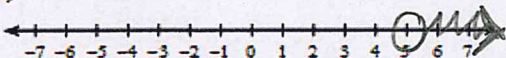
1) $4 > x$



2) $p > -4$

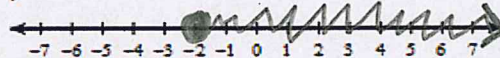


3) $-n < -5$



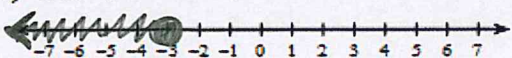
$n > 5$

4) $2 \geq -n$



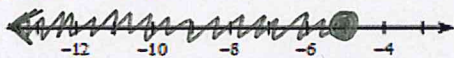
$n \geq -2$

5) $x \leq -3$



Solve each inequality and graph its solution.

1) $65 \leq -13n$



$$n \leq -5$$

Flip the sign!

2) $a - 7 > -17$



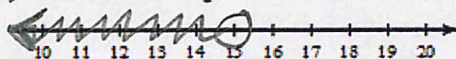
$$a > -10$$

3) $\frac{v}{3} \leq 9$



$$v \leq 27$$

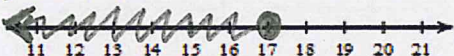
4) $-25 < -10 - p$



$$p < 15$$

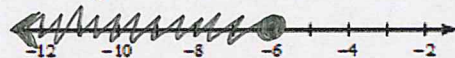
Flip the sign!

5) $6 + 4v \leq 74$



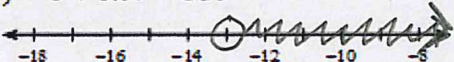
$$v \leq 17$$

6) $5 + \frac{b}{6} \leq 4$



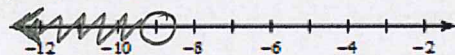
$$b \leq -6$$

7) $-6 + 8x > -110$



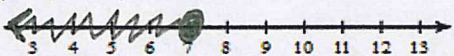
$$x > -13$$

8) $8(n + 5) < -32$



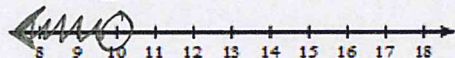
$$n < -9$$

9) $4(x - 2) \leq 20$



$$x \leq 7$$

10) $4 + \frac{n}{2} < 9$



$$n < 10$$