Lesson 1.6: Solving Linear Inequalities

Symbols Review:

$>$ $<$ $\geq$ $\leq$ $\neq$

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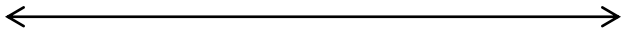
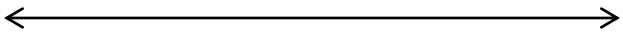
Examples:

1.

a. $x > 3$ vs. $3 < x$



b. $x \leq -2$

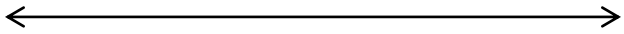


c. $2x < 8$ vs. $-2x < 8$

*** When multiplying/dividing by _____, switch the sign!

2. Solve and graph the inequality

$7x + 9 \geq 10x - 12$



3. Solve and graph the inequality

$2(n - 4) \leq 6$

4. The percent of households (h) with cable TV is modeled by $h = 2.3y + 44$, where y is the number of years since 1998. Describe the years when the % of household with cable is less than 53.2%.

Compound Inequalities: two simple inequalities joined by “and” or “or”

“and” inequalities can be written as one

$x > 5$ and $x < 8$

$8 > x > 5$ or $5 < x < 8$

“or” inequalities are two independent solutions

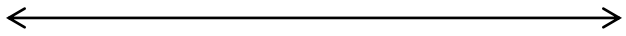
$x < 5$ or $x > 8$

** x _____ satisfy both conditions.

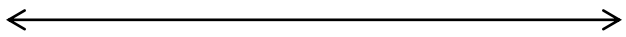
Examples

1. Solve and graph the inequality.

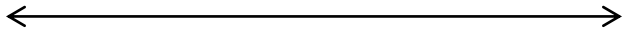
$-8 < 2x + 4 \leq 10$



2. Solve and graph the inequality.
   $6x + 9 < 3$ or $3x - 8 > 13$



3. Solve and graph the inequality.
   $-2 \leq x - 7$ or $11 \geq x - 7$



4. Solve and graph the inequality.
   $x - 1 \leq 5$ and $x + 3 \geq 10$