

Warm Up – Solve each of the following.

1. $8 - (x + 5) = 6x - 2(x + 8) - 6$

$8 - x - 5 = 6x - 2x - 16 - 6$

$3 - x = 4x - 22$

$3 = 5x - 22$

$3 = 5x - 22$

$25 = 5x$

$5 = x$

2. $4x + 4 = -2(x + 1) + 6x$

$4x + 4 = 4x - 2$

$4 = -2$

N.S.

3. $\frac{1}{2}x + 8 = 16$

$\frac{1}{2}x = 8$

$x = 16$

4. $\frac{x}{5} + 12 = -4$

$5 \cdot \frac{x}{5} = -16 \cdot 5$

$x = -80$

5. $\frac{1}{3}(9x + 12) = 4x - 2$

$3x + 4 = 4x - 2$

$4 = 1x - 2$

$6 = 1x$

$6 = x$

$6 = 1x$
 $6 = x$

Inequalities:

<	>	≤	≥
less than	greater than	less than or equal to	greater than or equal to
Example:	Example:	Example:	Example:

Graphing Inequalities:

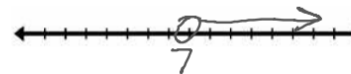
○ or ●
< or > ≤ or ≥

→ >
← <

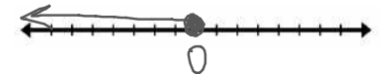
The variable must be in front (left-side)!!!

Ex 1:

Graph $x > 7$



Graph $w \leq 0$



Graph $g < -5$



Graph $z \geq 100$



$0 > 10$
 $5 > 5$

No Solution	vs.	All Real Numbers
The variable cancels and the inequality is FALSE!		The variable cancels and the inequality is TRUE!

$0 \leq 10$
 $5 \geq 5$

Negative Rule:

If you multiply or divide both sides by a negative number you must flip the symbol!

$$\frac{-2x}{-2} < \frac{14}{-2} \quad x > -7$$

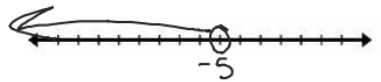
Example 2 – Solve and then graph your answer on a number line.

1. $-11y - 13 > 42$

$$\frac{-11y - 13}{+13} > \frac{42}{+13}$$

$$\frac{-11y}{-11} > \frac{55}{-11}$$

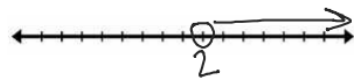
$y < -5$



2. $\frac{24}{-8} < \frac{8b+8}{-8}$

$$\frac{16}{8} < \frac{8b}{8}$$

$2 < b$
 $b > 2$

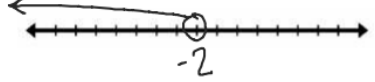


3. $-3(2x+1) > 9$

$$\frac{-6x - 3}{+3} > \frac{9}{+3}$$

$$\frac{-6x}{-6} > \frac{12}{-6}$$

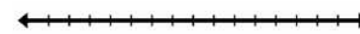
$x < -2$



4. $-7(k+4) + 11k \geq 8k - 2(2k+1)$



5. $2(4r-3) \leq 10 + 8(r-2)$



What if it had < instead?

6. $4(3t-5) + 7 \geq 8t + 3$



7. $5x + 3 \leq 2x + 9$

