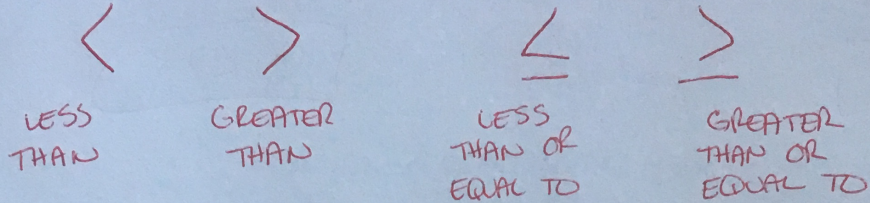


Solving & Graphing Inequalities - NOTES

1) The four INEQUALITY symbols are:



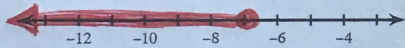
2) When graphing an inequality on a number line, you have to consider whether or not you are including the starting point.

$<$ AND $>$: DOES NOT INCLUDE STARTING POINT. OPEN CIRCLE ON GRAPH

\leq AND \geq : INCLUDES STARTING POINT. CLOSED CIRCLE ON GRAPH.

Solve each inequality and graph its solution.

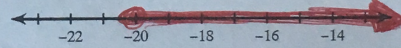
3) $n - 4 \leq -11$



$$\begin{array}{r} n - 4 \leq -11 \\ +4 \quad +4 \end{array}$$

$$n \leq -7$$

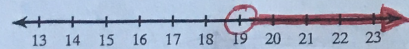
4) $p + 12 \geq -8$



$$\begin{array}{r} p + 12 \geq -8 \\ -12 \quad -12 \end{array}$$

$$p \geq -20$$

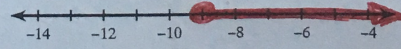
5) $10 < a - 9$



$$\begin{array}{r} 10 < a - 9 \\ +9 \quad +9 \end{array}$$

$$19 < a$$

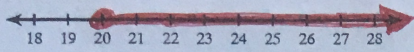
6) $a - 15 \geq -24$



$$\begin{array}{r} a - 15 \geq -24 \\ +15 \quad +15 \end{array}$$

$$a \geq -9$$

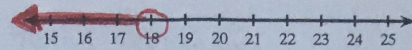
7) $40 \geq 20 + m$



$$\begin{array}{r} 40 \geq 20 + m \\ -20 \quad -20 \end{array}$$

$$\boxed{20 \geq m}$$

8) $x - 6 < 12$



$$\begin{array}{r} x - 6 < 12 \\ +6 \quad +6 \end{array}$$

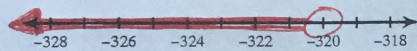
$$\boxed{x < 18}$$

9) If you multiply or divide each side by a NEGATIVE number, you MUST:

FLIP THE INEQUALITY SIGN

Solve each inequality and graph its solution.

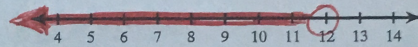
10) $\frac{p}{20} < -16$



$$\cancel{20} * \frac{p}{\cancel{20}} < -16 * \cancel{20}$$

$$\boxed{p < -320}$$

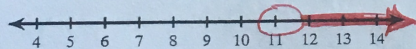
11) $6b \leq 72$



$$\frac{6b}{6} \leq \frac{72}{6}$$

$$\boxed{b \leq 12}$$

12) $-220 > -20v$

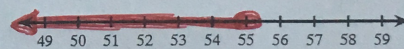


$$\frac{-220}{-20} > \frac{-20v}{-20}$$

$$\boxed{11 < v}$$

↑ DIVIDING BY A NEGATIVE, SO SWITCH THE SIGN

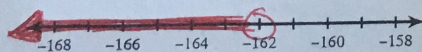
13) $\frac{m}{5} \leq 11$



$$\cancel{5} * \frac{m}{\cancel{5}} \leq 11 * \cancel{5}$$

$$\boxed{m \leq 55}$$

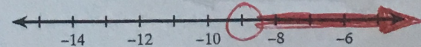
14) $-18 > \frac{p}{9}$



$$\cancel{9} * -18 > \frac{p}{\cancel{9}} * \cancel{9}$$

$$\boxed{-162 > p}$$

15) $-18 < 2b$



$$\frac{-18}{2} < \frac{2b}{2}$$

$$\boxed{-9 < b}$$