

# 4.4 Solving Two-Step Inequalities

EQ: How can we use all four operations to solve inequalities?

Remember! "UNDO" PEMDAS to isolate the variable.

PEMDAS  
 ← start here

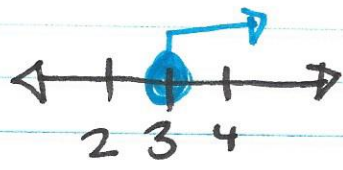
\* Always get rid of addition/subtraction first, then multiplication/division.

EXCEPTION: when it is a part of a fraction or group

ex:  $\frac{x+5}{4} \leq 10$

Example 1: Solve & graph  $5x - 4 \geq 11$

- ① x
- ②  $\times 5$   
-4
- ③  $\div 5$   
+4 ← start here



$$\begin{array}{r} +4 \quad +4 \\ 5x - 4 \geq 11 \\ \hline 5x \geq 15 \\ \hline \end{array}$$

$x \geq 3$  or  $3 \leq x$

Example 2: Solve & graph.  $\frac{b}{-3} + 4 < 13$

- ① b
- ②  $\div -3$   
+4
- ③  $\times -3$   
-4

$$\begin{array}{r} -4 \quad -4 \\ \frac{b}{-3} + 4 < 13 \\ \hline \frac{-3}{1} \cdot \frac{b}{-3} < 9 \cdot -3 \end{array}$$

$b < -27$  (FLIP)

$b > -27$

Multiplying by a negative  
 FLIP the sign