SOLVING INEQUALITIES

$2m+7 < 5m-9 \leq 3m+2$

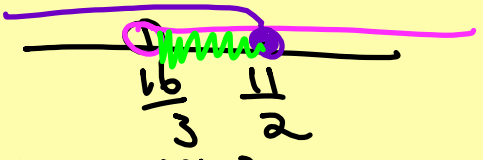
$2m+7 < 5m-9$ AND $5m-9 \leq 3m+2$

$-2m \quad -2m \qquad -3m \quad -3m$

$+9 \qquad +9$

$\frac{16}{3} < \frac{3m}{3} \qquad \frac{2m}{2} \leq \frac{11}{2}$

$\frac{16}{3} < m$ AND BOTH $m \leq \frac{11}{2}$



AND = OVERLAP

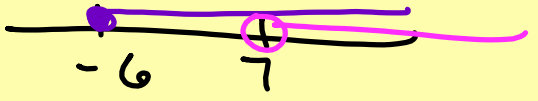
$\frac{16}{3} < m \leq \frac{11}{2}$

$-3 \leq 2y+9$ OR $18-4y < -10$

$-9 \quad -9 \qquad -18 \quad -18$

$\frac{-12}{2} \leq \frac{2y}{2} \qquad \frac{-4y}{-4} < \frac{-28}{-4}$

$-6 \leq y$ OR $y > 7$

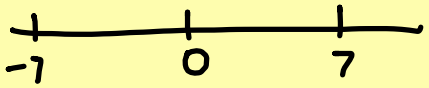


$y \geq -6$

OR = Anything Shaded

ABSOLUTE VALUE

$|-7| = 7$



$|x| = 4$

$x = -4$ or $x = 4$

$|K+6| = 3$

$K+6=3 \quad K+6=-3$

$K=-3$ OR $K=-9$

1) Isolate abs value
2) Write + solve 2 equations

$-2|x+2| + 12 = 0$

$\frac{-2|x+2|}{-2} = \frac{-12}{-2}$

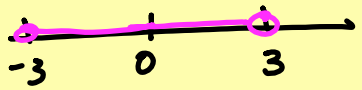
$|x+2| = 6$

$x+2=6 \quad x+2=-6$

$-2 \quad -2$

$x=4 \quad x=-8$

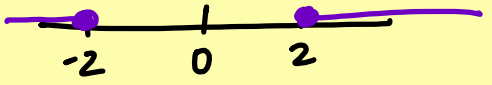
$|x| < 3$



AND

LESS THAN

$|x| \geq 2$



OR

GREAT OR

$4|6x+2|+20 > 12$

$-20 \quad -20$

$\frac{4|6x+2|}{4} > \frac{-8}{4}$

$|6x+2| > -2$

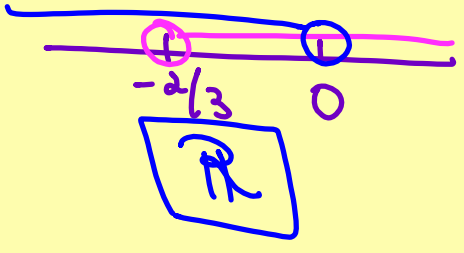
switch

$6x+2 > -2$ OR $6x+2 < 2$

$-2 \quad -2 \qquad -2 \quad -2$

$\frac{6x}{6} > \frac{-4}{6} \qquad \frac{6x}{6} < \frac{0}{6}$

$x > -2/3 \qquad x < 0$



When isolated |

$|x+7| > -7$

R

$|x+7| < -2$

No solution

$-5|8-6x| + 45 > -15$
$\quad -45 \quad\quad -45$

$\frac{-5|8-6x|}{-5} > \frac{-60}{-5}$

switch

$|8-6x| < 12$

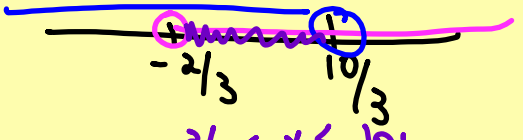
AND

switch

$8-6x < 12$
$\quad -8 \quad -8$
$\frac{-6x}{-6} < \frac{4}{-6}$
$x > -\frac{2}{3}$

$8-6x > -12$
$\frac{20}{6} > \frac{6x}{6}$
$\frac{10}{3} > x$

AND = overlap



$-\frac{2}{3} < x < \frac{10}{3}$

MATRIX – a rectangular array of numbers enclosed in brackets

$$\begin{bmatrix} 2 & -1 \\ 3 & 4 \\ 4 & 5 \end{bmatrix}$$

Dimensions. # of Rows x # of Columns

3×2

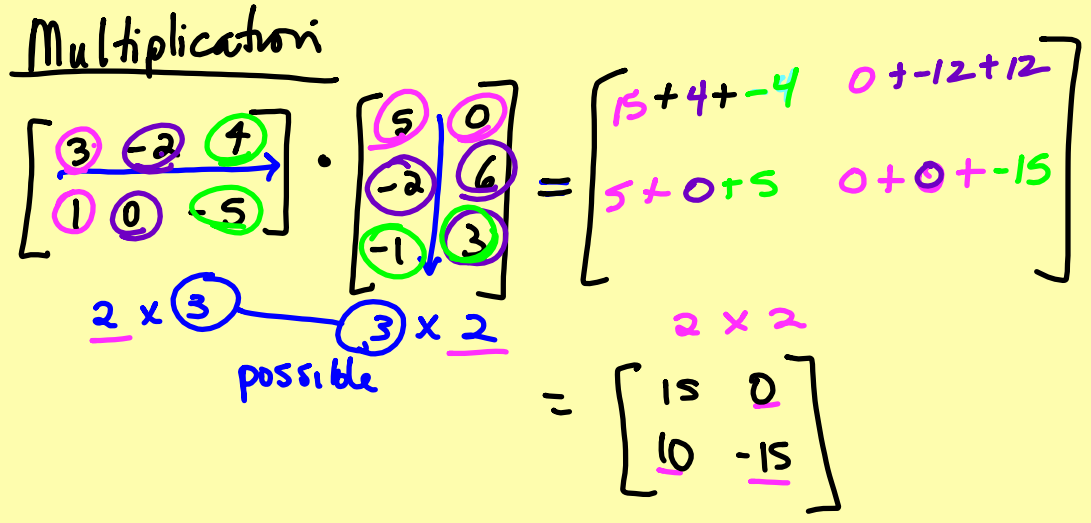
$$\begin{bmatrix} 3 & -6 \\ 4 & 2 \\ 5 & -1 \end{bmatrix} + \begin{bmatrix} 8 & 0 \\ -9 & 3 \\ 3 & 7 \end{bmatrix} = \begin{bmatrix} 11 & -6 \\ -5 & 5 \\ 8 & 6 \end{bmatrix}$$

$$\begin{bmatrix} 0 & 7 \\ -6 & 3 \end{bmatrix} + \begin{bmatrix} 5 & 6 \\ 8 & -2 \\ 9 & 1 \end{bmatrix} = \text{not possible}$$

$$3\begin{bmatrix} 2 & 6 \\ 5 & -1 \end{bmatrix} - 2\begin{bmatrix} 8 & 7 \\ 9 & -2 \end{bmatrix}$$

$$= \begin{bmatrix} 6 & 18 \\ 15 & -3 \end{bmatrix} + \begin{bmatrix} -16 & -14 \\ -18 & 4 \end{bmatrix}$$

$$= \begin{bmatrix} -10 & 4 \\ -3 & 1 \end{bmatrix}$$



#8) Find dimensions of the missing matrix:

[7 x 9] * [9 x 2] = ???

Answer: [7 x 2] (If the inside dimensions are the same, the outside dimensions will be the size of the resulting matrix.

#9) Calculator: P1 will do at beginning of next class.

P4 & B1: See video on website (ncthunder.org/smeyer)