

BE-1A | MONDAY 3-15-10

WELCOME BACK 😊. TODAY IS THE FIRST DAY OF QUARTER 4!

① Solve: $3x < 8$, GRAPH SOLUTION.

② Solve: $\frac{2}{3}x \geq -5$, GRAPH SOLUTION.

③ Solve: $-2x + 4 \leq 6$, GRAPH SOLUTION.

④ Solve: $-\frac{3}{4}x < 12$, GRAPH SOLUTION.

Compound

MORE THAN ONE

Compound
inequality

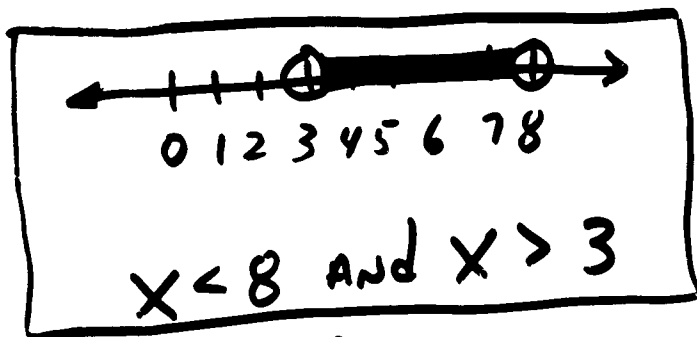
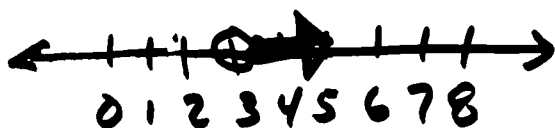
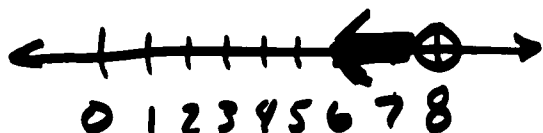
MORE THAN ONE INEQUALITY,
for our purpose - this will
mean a group of two inequalities.

Two types of compound inequalities:

AND

BOTH INEQUALITIES MUST BE TRUE

EX) $x < 8$ AND $x > 3$



$x < 8$ AND $x > 3$

or

$3 < x < 8$

or

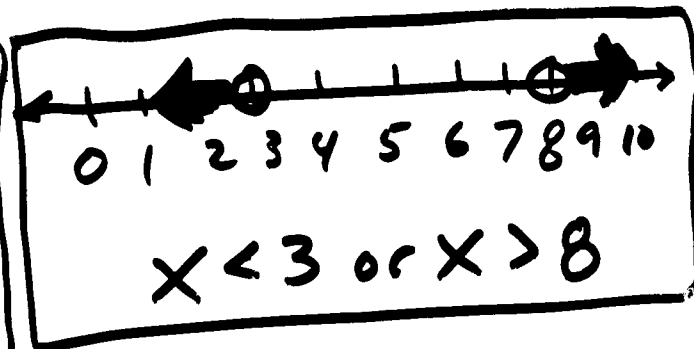
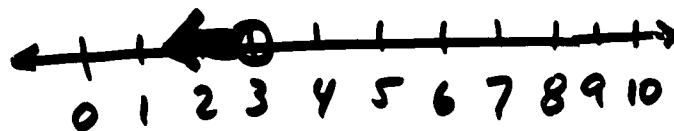
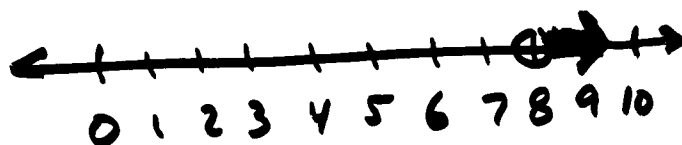
$8 > x > 3$

SHORTHAND FOR ANDS ONLY

OR

ONE OR BOTH OF THE INEQUALITIES MUST BE TRUE

EX) $x > 8$ OR $x < 3$



$x < 3$ OR $x > 8$

Ex) SOLVE AND GRAPH SOLUTION:

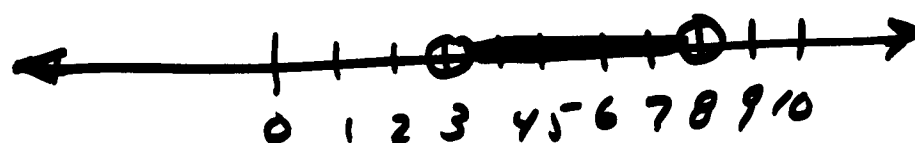
$$\begin{array}{ccc} 6 < w + 3 & \text{AND} & w + 3 < 11 \\ -3 & & -3 \end{array}$$

$$3 < w$$

$$\boxed{w > 3}$$

AND

$$\boxed{w < 8}$$



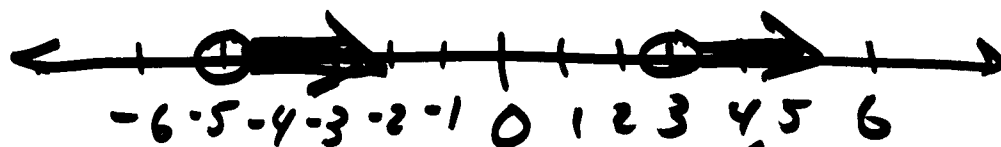
{Ex
4}
Pg 341

$$-3h + 4 < 19 \text{ or } 7h - 3 > 18$$

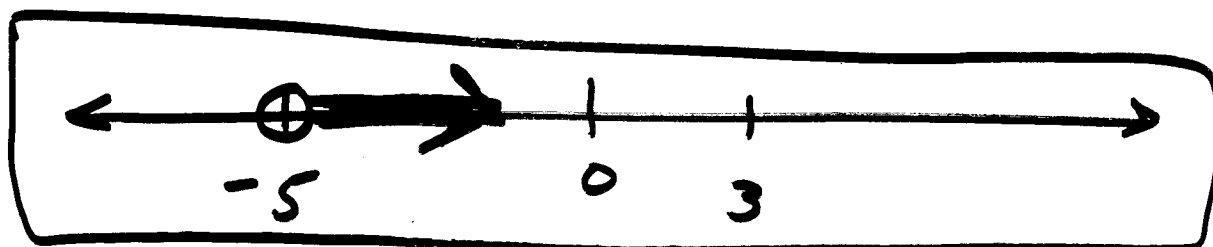
$$\begin{array}{ccc} -4 & -4 & \{ \\ & & +3 \quad +3 \end{array}$$

$$\begin{array}{ccc} -3h & < & 15 \\ \hline -3 & & -3 \end{array} \quad \{ \quad \begin{array}{ccc} 7h & > & 21 \\ \hline 7 & & 7 \end{array}$$

$$\boxed{h > -5} \text{ OR } \boxed{h > 3}$$



THIS INCLUDES THIS PART



Normal **AND** graph:



NEVER AN "OR"

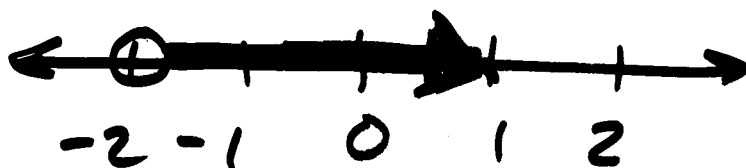
Normal **OR** graph:



NEVER AN "AND"

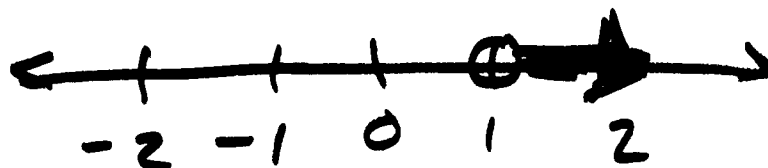
SPECIAL "OR" or "AND" THAT 'GOES ONE WAY'
WATCH OUT!

(Ex)



$$x > -2 \text{ or } x > 1$$

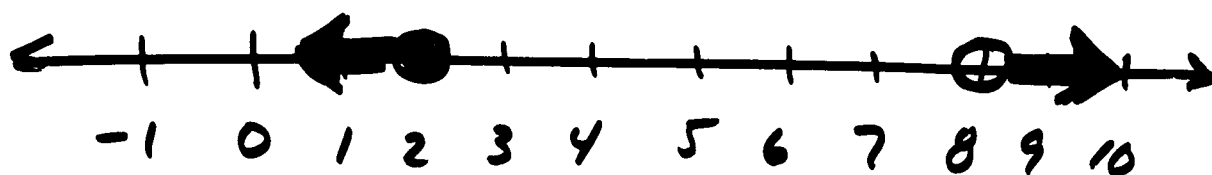
(Ex)



$$x > -2 \text{ and } x > 1$$

Solve AND graph:

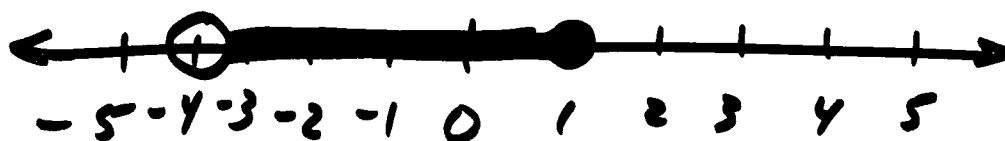
(EX) $x - 7 \leq -5$ or $N - 7 > 1$
 $\quad +7 \quad +7 \quad \quad +7 \quad +7$
 $\boxed{x \leq 2}$ or $\boxed{N > 8}$



(EX) $-8 < x - 4 \leq -3$

SHORTHAND WAY OF WRITING

$-8 < x - 4$ $\boxed{\text{AND}}$ $x - 4 \leq -3$
 $+4 \quad +4 \quad \quad +4 \quad +4$
 $-4 < x$
 $\boxed{x > -4}$ AND $\boxed{x \leq 1}$



Going from long way TO SHORT WAY
to write "ANDS"

(EX) $x > -2$ AND $x < 5$

TO use two $<$, $<$, PUT smallest
number first:

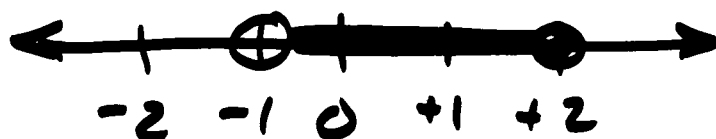
$$-2 < x < 5$$

TO use two $>$, $>$, PUT largest first:

$$5 > x > -2$$

Go from graph TO compound inequality:

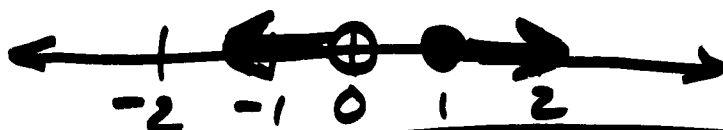
(EX)



$$x > -1 \text{ AND } x \leq 2$$

$$-1 < x \leq 2$$

(EX)



$$x < 0 \text{ or } x \geq 1$$

Homework: • Read Ch 6-4 • Pg 342 #14-22