

**BE-1A** | MONDAY 3-14-11

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WELCOME BACK 😊. TODAY IS  
PI DAY!

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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.

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Compound

MORE THAN ONE

Compound  
inequality

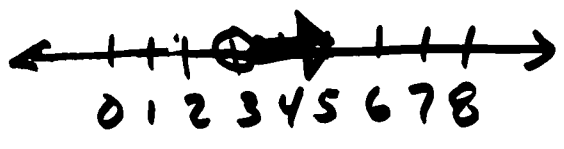
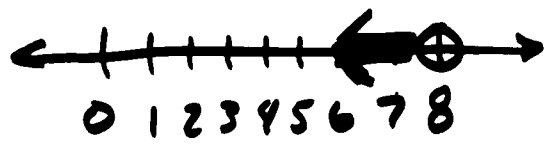
MORE THAN ONE INEQUALITY,  
for our purpose - this will  
MEAN A group of two inequalities.

# 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

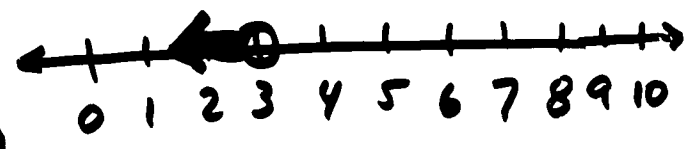
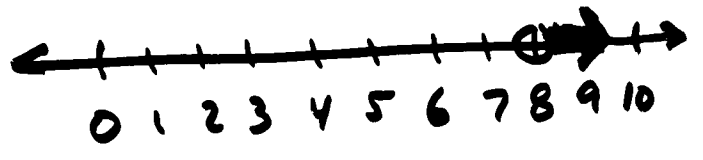
$8 > x > 3$

SHORTHAND FOR ANDS ONLY

**OR**

ONE OF BOTH OF THE INEQUALITIES MUST BE TRUE

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



$x < 3$  OR  $x > 8$

EX) SOLVE AND GRAPH SOLUTION:

$$6 < w + 3 \quad \text{AND} \quad w + 3 < 11$$

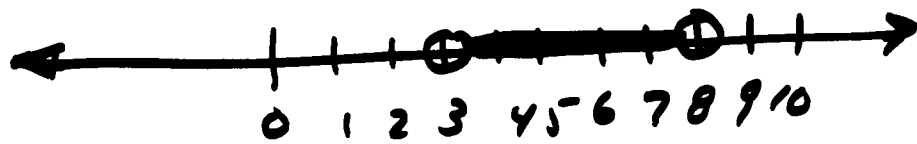
$$\begin{array}{ccc} -3 & -3 & \qquad \qquad \qquad -3 \quad -3 \end{array}$$

$$3 < w$$

$$\boxed{w > 3}$$

AND

$$\boxed{w < 8}$$



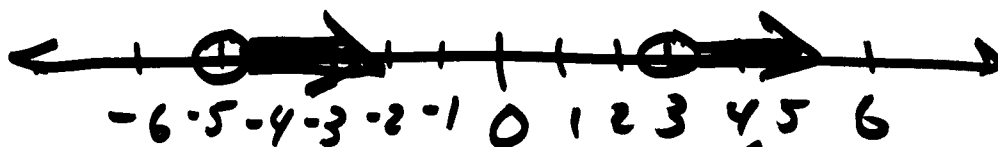
EX  
4  
pg 341

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

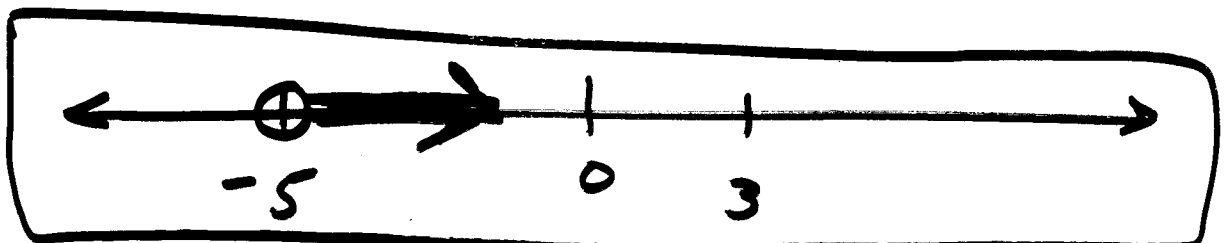
$$\begin{array}{ccc} -4 & -4 & \qquad \qquad \qquad +3 \quad +3 \end{array}$$

$$\frac{-3h}{-3} < \frac{15}{-3} \qquad \qquad \qquad \frac{7h}{7} > \frac{21}{7}$$

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



THIS INCLUDES THIS PART



Normal **AND** graphs:



NEVER AN "OR"



Normal **OR** graphs:

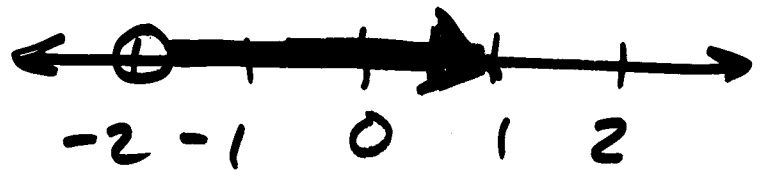


NEVER AN "AND"



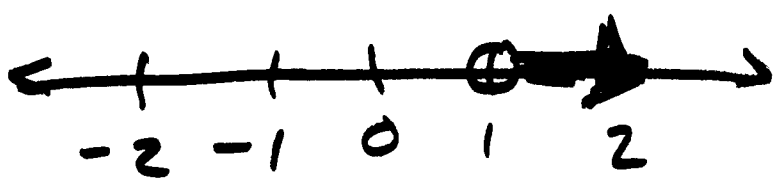
SPECIAL "OR" or "AND" THAT 'GOES ONE WAY'  
WATCH OUT!

(EX)



$x > -2$  OR  $x > 1$

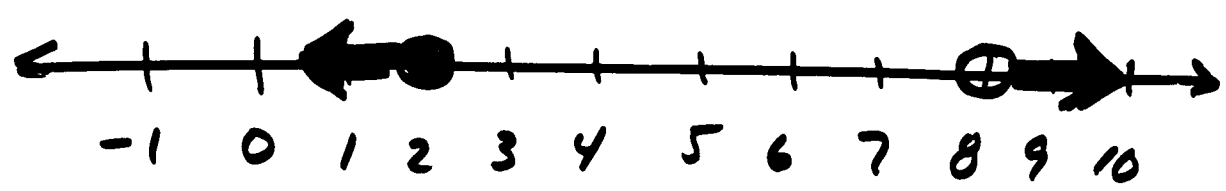
(EX)



$x > -2$  AND  $x > 1$

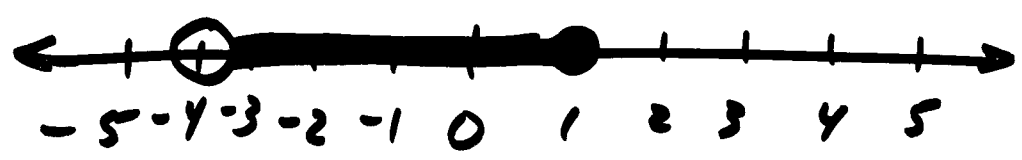
Solve and graph:

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



(EX)  $-8 < x - 4 \leq -3$   
 SHORTHAND WAY OF WRITING

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

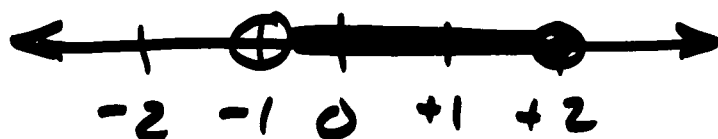
$$-2 < x < 5$$

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

$$5 > x > -2$$

Go from graph TO compound inequality:

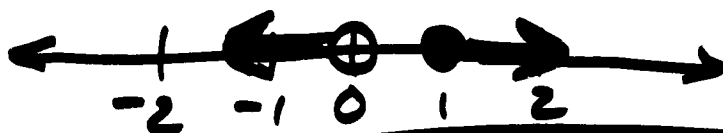
(EX)



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

$$-1 < x \leq 2$$

(EX)



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

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