

BE-1A TUESDAY 4-29-08

GRAPH THE FOLLOWING COMPOUND INEQUALITIES
ON A NUMBER LINE:

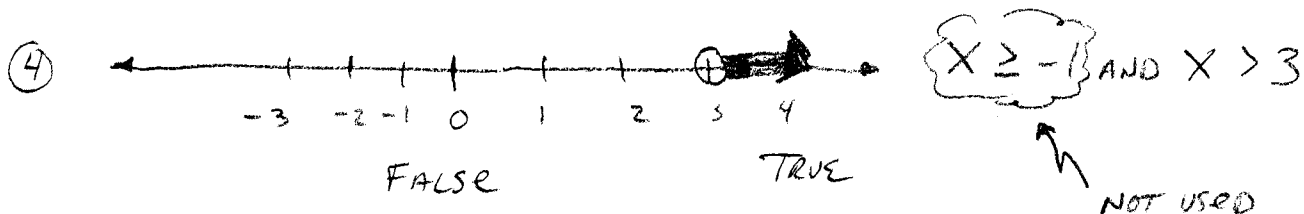
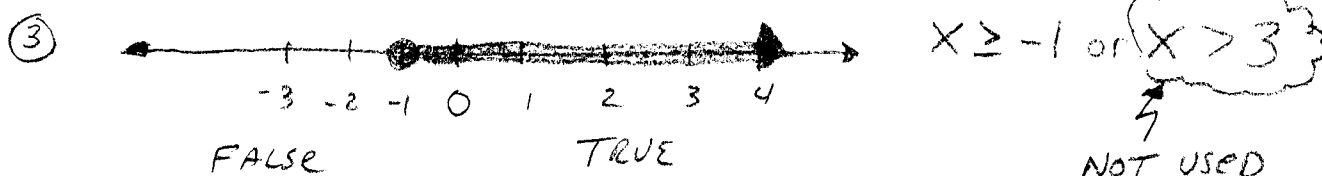
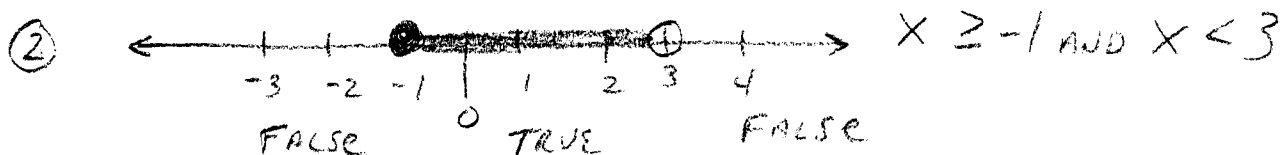
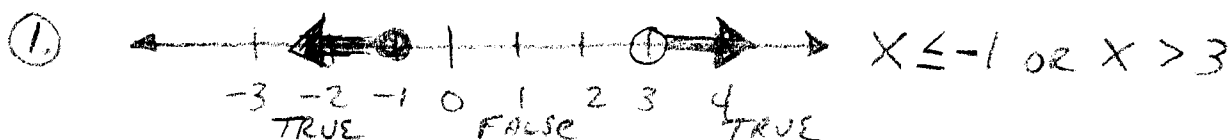
NOTES

① $x \leq -1$ OR $x > 3$ MOST COMMON "OR" GRAPH

② $x \geq -1$ AND $x < 3$ MOST COMMON "AND" GRAPH

③ $x \geq -1$ OR $x > 3$ SPECIAL CASE "OR"

④ $x \geq -1$ AND $x > 3$ SPECIAL CASE "AND"



* 10 POINTS ADDED TO EVERYONE'S QUIZ 4 grade because a question like # 4 WAS ON GURE I DIDN'T COVER IT. :)

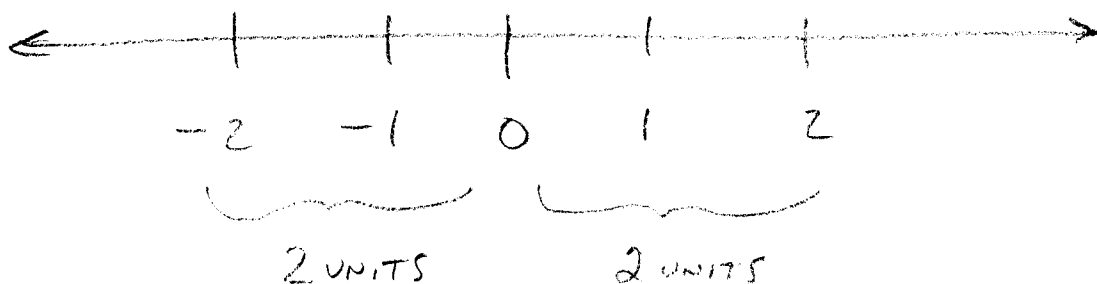
WHAT is $|-2| = ?$

The absolute value of -2 is 2 .



The distance from zero
on a number line.

Distance is positive!



$$|-2| = 2 \qquad |2| = 2$$

WHAT VALUES of x would make
this expression true?

$$|x| = 3$$

Since $|-3| = 3$ and $|3| = 3$, there
are two solutions, $\boxed{x = -3}$, $\boxed{x = 3}$

How TO SOLVE ABSOLUTE VALUE EQUATIONS:

Step 1 Get the absolute value "by itself"

Step 2 Split into 2 equations, a positive and negative while replacing "11" with "(", solve using GRE.

EX $|x| + 1 = 6$
 $-1 \quad -1$

$$|x| = 5$$

⊕

$$+(x) = 5$$

$$x = 5$$

⊖

$$-(x) = 5$$

$$x = -5$$

checks?

💡 use 1 arrow per "1" to remind you split into two

EX $|x-4| + 2 = 5$
 $-2 \quad -2$

$$|x-4| = 3$$

$$+(x-4) = 3$$

$$x-4 = 3$$

$$+4 \quad +4$$

$$x = 7$$

$$-(x-4) = 3$$

$$-1(x-4) = 3$$

$$-x+4 = 3$$

$$-x = -1$$

$$x = 1$$



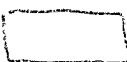
EX1
pg
346

What about $|x| < 3$ Same way, use GRI

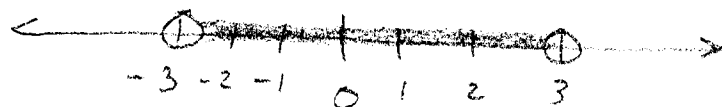
$$\begin{array}{l} \textcircled{+} \searrow \quad \textcircled{-} \searrow \\ +(x) < 3 \quad \quad - (x) < 3 \end{array}$$

$$x < 3$$

$$x > -3$$



MAKE GRAPH TO DECIDE
IF "AND" OR "OR"



AND

Don't forget to get the Absolute value
part "by itself" before you split
into a $\textcircled{+}$ AND $\textcircled{-}$ equation or inequality.

💡 After you do a couple you will see you
don't need the $+()$ on the left side,
just the $-()$ on the right.

Ch 6-5 Solving Absolute Value Equations
AND INEQUALITIES

ABS. VALUE MAKES A COMPOUND INEQUALITY

Ex 3
Pg 347

$$|t+5| < 9$$

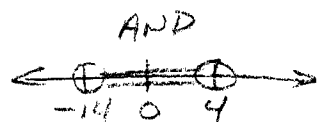
$$\begin{array}{r} t+5 < 9 \\ -5 \quad -5 \end{array}$$

$$t < 4$$

$$\left\{ \begin{array}{l} -(t+5) < 9 \quad \div \text{ by } -1 \\ t+5 > -9 \\ -5 \quad -5 \end{array} \right.$$

AND

$$t > -14$$



Ex 4
Pg 348

$$|2x+8| \geq 6$$

$$\begin{array}{r} 2x+8 \geq 6 \\ -8 \quad -8 \end{array}$$

$$\frac{2x}{2} \geq \frac{-2}{2}$$

$$x \geq -1$$

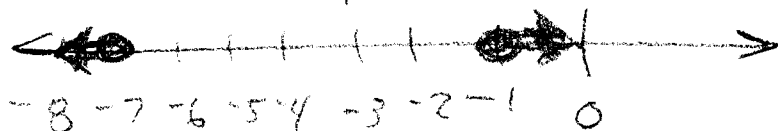
$$\left\{ \begin{array}{l} -(2x+8) \geq 6 \end{array} \right.$$

$$\begin{array}{r} 2x+8 \leq -6 \\ -8 \quad -8 \end{array}$$

$$\frac{2x}{2} \leq \frac{-14}{2}$$

OR

$$x \leq -7$$



Practice
Pg 349
7-10

Homework: Pg 350

25-33 ODD