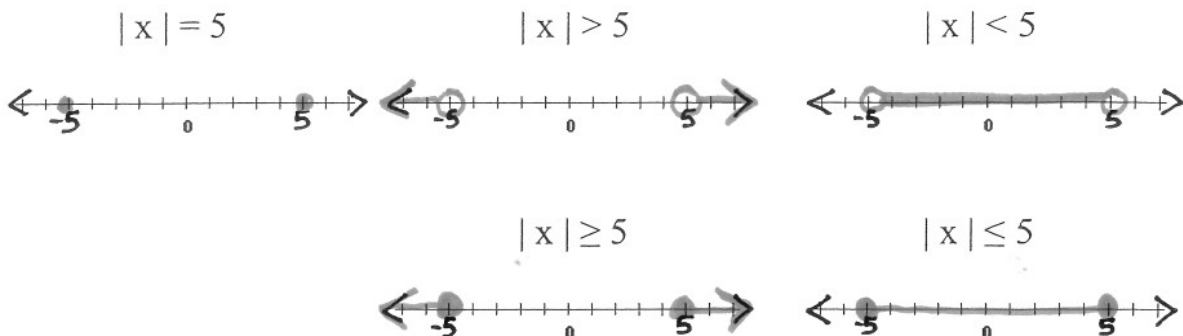


Example 1.



"or"	"and"
$>$	$<$
\geq	\leq
2 rays	line segment

Example 2.

$|x + 3| > 4$

Handwritten notes: "or", "leave it", "change it", "opposite"

$$\begin{array}{r} x + 3 > 4 \\ \underline{-3} \quad \underline{-3} \\ x + 0 > 1 \\ x > 1 \end{array} \quad \text{or} \quad \begin{array}{r} x + 3 < -4 \\ \underline{-3} \quad \underline{-3} \\ x + 0 < -7 \\ x < -7 \end{array}$$

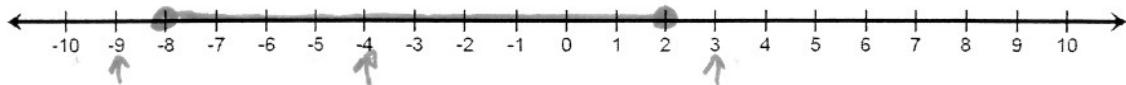

check:

$ x + 3 > 4$??????
$x = -8$ $ -8 + 3 > 4$ $ -5 > 4$ $5 > 4$	<u>yes</u>
$x = -3$ $ -3 + 3 > 4$ $ 0 > 4$ $0 > 4$	<u>no</u>
$x = 3$ $ 3 + 3 > 4$ $ 6 > 4$ $6 > 4$	<u>yes</u>

Example 3.

$$|x + 3| \leq 5$$

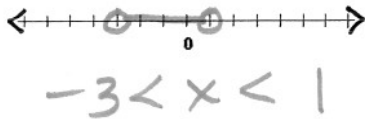
$$\begin{array}{l}
 \downarrow \quad \quad \downarrow \\
 x + 3 \leq 5 \quad \quad x + 3 \geq -5 \\
 \underline{-3} \quad \underline{-3} \quad \quad \underline{-3} \quad \underline{-3} \\
 x + 0 \leq 2 \quad \quad x + 0 \geq -8 \\
 x \leq 2 \quad \quad \text{and} \quad \quad x \geq -8 \\
 \quad \quad \quad \quad \quad -8 \leq x \leq 2
 \end{array}$$



check:	$ x + 3 \leq 5$??????
$x = -9$	$ -9 + 3 \leq 5$	$ -6 \leq 5$	$6 \leq 5$	<u>no</u>
$x = -4$	$ -4 + 3 \leq 5$	$ -1 \leq 5$	$1 \leq 5$	<u>yes</u>
$x = 3$	$ 3 + 3 \leq 5$	$ 6 \leq 5$	$6 \leq 5$	<u>no</u>

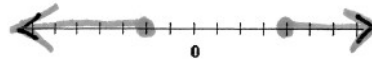
Example 4.

$$\begin{array}{l}
 \text{and} \\
 |x + 1| < 2 \\
 \downarrow \quad \quad \downarrow \\
 x + 1 < 2 \quad \quad x + 1 > -2 \\
 \underline{-1} \quad \underline{-1} \quad \quad \underline{-1} \quad \underline{-1} \\
 x + 0 < 1 \quad \quad x + 0 > -3 \\
 x < 1 \quad \text{and} \quad x > -3
 \end{array}$$



Example 5.

$$\begin{array}{l}
 \text{or} \\
 |x - 1| \geq 3 \\
 \downarrow \quad \quad \downarrow \\
 x - 1 \geq 3 \quad \quad x - 1 \leq -3 \\
 \underline{+1} \quad \underline{+1} \quad \quad \underline{+1} \quad \underline{+1} \\
 x + 0 \geq 4 \quad \quad x + 0 \leq -2 \\
 x \geq 4 \quad \text{or} \quad x \leq -2
 \end{array}$$



"or"		"and"	
$ ax + b > c$		$ ax + b < c$	
$ ax + b \geq c$		$ ax + b \leq c$	