Mathematics9 Date _____

Unit 8 Solving Equations & Inequalities
8.5 Representing Inequalities (text 9.1)

Inequality – a mathematical statement comparing expressions that may not be equal

Inequality Symbols:

$<$	less than
$>$	greater than
$\leq$	less than or equal to
$\geq$	greater than or equal to
$\neq$	not equal to

$8 < 10$

We can express inequalities:

1) Verbally/written

ex. A number more than three.

2) Algebraically (with an inequality sign)

ex. $x > 3$

3) Visually/graphically (on a number line)

boundary value – open (hollow) → it is not part of the solution
– closed (shaded) → it is part of the solution

Ex. Show each statement graphically and algebraically:

a) All numbers equal to at most −1.

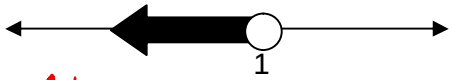
$x \leq -1$

b) You must be at least 16 years old to get a driver's license.

$x \geq 16$

Ex. State each inequality shown in words and algebraically:

a)



All numbers less than 1

$x < 1$

b)

All numbers −2 or more.

$x \geq -2$

Combination (compound) Inequalities

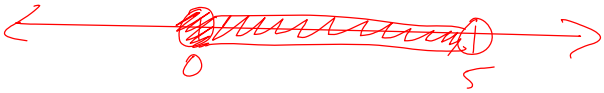
Ex. The average temperature fluctuates from a low of −18°C to a high of 21°C.

$x \geq -18$ AND $x \leq 21$

$-18 \leq x \leq 21$

$-18° \leq 10° \leq 21$

Ex. $x < 5$ and $x \geq 0$



$0 \leq x < 5$

$0 \leq 4 < 5$

Note:

$x > 8$ — x greater than 8

$8 < x$ — 8 less than x

} same solution

Practice: pg. 346/ # 1, 4 – 11, 13, 15, 16, 18, 19, 22, 23