Chapter #9 Linear Inequalities

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9.1 Representing Inequalities

Inequality: - a mathematical statement comparing expressions that may not be equal

- can be written using the symbols:

$<$, $>$, $\leq$, $\geq$, or $\neq$

Reading an Inequality: (3 ways)

1. Verbally - using words

Inequality	Meaning
$a > b$	a is greater than b
$a < b$	a is less than b
$a \geq b$	a is greater than or equal to b
$a \leq b$	a is less than or equal to b
$a \neq b$	a is not equal to b

2. Graphically: using a number line
   ↳ set up a # line with target # in the middle

Inequality	Symbol
$>$ or $<$	use ○ on the # - the point is not included in the

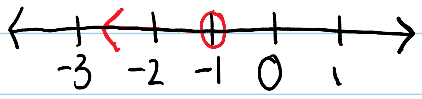
$>$ or $<$	use ○ on the #
$\geq$ or $\leq$	use ● on the #
$>$ or $\geq$	use → right arrow
$<$ or $\leq$	use ← left arrow

- the point is not included in the solution

the point is included in the solution

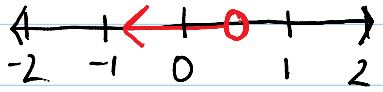
Ex. #1 graph each inequality

(a.) $m < -1$ open dot, left arrow



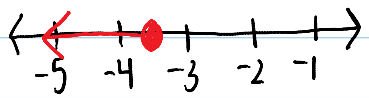
(b.) $0.5 > p$ → rewrite → $p < 0.5$

open dot, left arrow



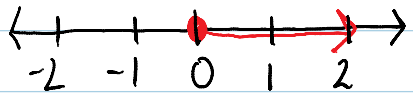
(c.) $w \leq -3.5$

closed dot, left arrow



(d.) $t \geq 0$

closed dot, right arrow



3. Algebraically: use symbols such as variables

Ex #2

(a.) $\frac{2x}{2} \leq \frac{1.5}{2}$

$x \leq 0.75$

RECALL: Chapter #8 Equations !!

$\frac{2x}{2} = \frac{1.5}{2}$

$x = 0.75$

(b.) $5x + 6 \geq 16$

$-6 \quad -6$

$5x \geq 10$

$5x + 6 = 16$

$-6 \quad -6$

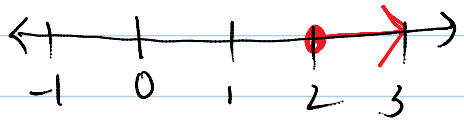
$\frac{5x}{5} = \frac{10}{5}$

$\frac{5x}{5} \geq \frac{10}{5}$

$x \geq 2$

$\frac{5x}{5} = \frac{10}{5}$

$x = 2$



(c.) $-n < 4$

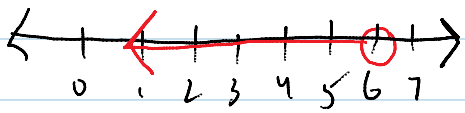
$-1 \quad -1$

$n < -4$

(d.) $-6 > -m$

$-1 \quad -1$

$6 > m$ re-write $m < 6$



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