Intro - Linear Inequalities

1) What is an inequality?

A mathematical statement comparing expressions that may not be equal.

ex) $2 \leq 4$ $\quad w + 3 > -15$

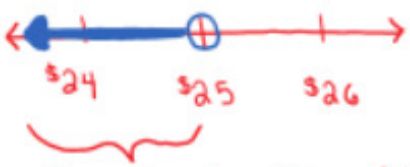
2) What do the following symbols mean? Give an example for each using numbers.

$<$	less than	ex) $6 < 7$ $\quad x < 8$
$\leq$	less than or equal	ex) $6 \leq 6$ $\quad y \leq -5$
$>$	greater than	ex) $2 > 1$ $\quad -3 > t$
$\geq$	greater than or equal	ex) $600 \geq 200$
$\neq$	not equal to	ex) $2 \neq 11$

3) State the three ways inequalities can be expressed. Include an example for each.

① Verbally (using words) "I have less than $25 to spend"

② Graphically (using a number line)



Any value less than $25 is possible.
ex) Could spend $24.
Could spend $5.
Could not spend $25.
Could not spend $26.

③ Algebraically (using symbols)

$m < \$25$

4) What is a boundary point?

Separates the values less than from the values greater than a value.

May or may not be a possible value in a solution.

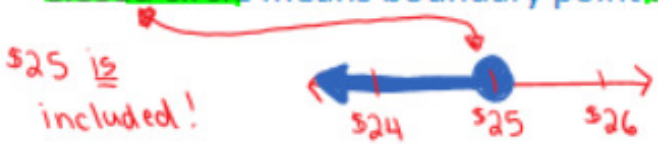
5) What does an open circle mean with a boundary point? Give an example.

Open circle means boundary point IS NOT included in solution.

ex) Could spend $24 ✓
Could spend $25 ✗

6) What does a closed circle mean with a boundary point? Give an example.

Closed circle means boundary point IS included in solution.



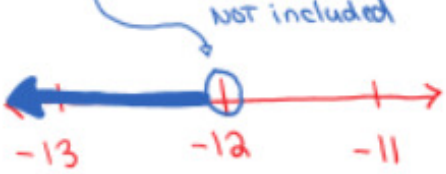
ex) Could spend $24 ✓
Could spend $25 ✓
Could spend $26 ✗

7) Express the inequality shown on the number line verbally and algebraically.

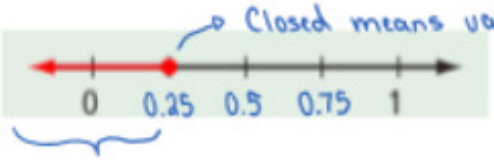
A value greater than −136.

$x < -136$

8) Represent the inequality $n < -12$ on a number line.



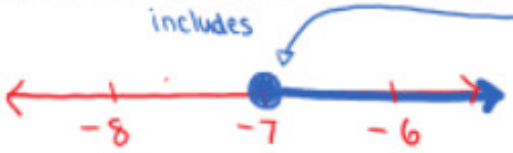
9) Write an inequality for the values shown on the number line. Describe a real-life scenario that the inequality might represent.



$x \leq 0.25$

You can spend up to (and including) $0.25.

10) Show the possible values for x on a number line if $-7 \leq x$.



11) What is a different way to express $-7 \leq x$ algebraically?

$x \geq -7$ Careful! Symbol has to flip.

12) The most extreme change in temperature in Canada took place in January 1962 in Pincher Creek, Alberta. A warm, dry wind, known as a chinook, raised the temperature from $-19°C$ to $22°C$ in one hour. Represent the temperature during this hour using inequalities.

a) Express verbally. The temperature changed from -19°C to 22°C.

b) Express graphically.

c) Express algebraically.

$t \geq -19°C$
$t \leq 22°C$

OR

$-19°C \leq t \leq 22°C$

STOP Hand in to Mrs. Coe to be checked!!!

Outcomes: PR4 - Single variable linear inequalities