Quiz Problem:

$3(x+5)+2x=5(x+5)-10$

$3x+15+2x=5x+25-10$

$5x+15=5x+15$

So this equation is called an identity.

2.2. Linear Inequalities

$<$ less than

$\leq$ less than or equal to

$>$ greater than

$\geq$ greater than or equal to

Example (1). $3x+2<23$

$3x<21$

$\boxed{x<7}$

There is an infinite number of solutions to this inequality.

Three different ways to indicate infinite sets.

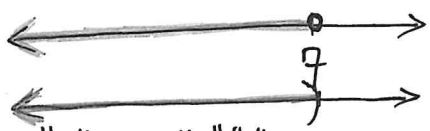
① statement of inequality (set builder notation)

$x<7$

$\{x \mid x \in \mathbb{R}, x<7\}$: The set of all x such that x is an element of real number and x is less than 7"

↑ "such that"

② number line graph



alternative notation.

Hawkes notation

"o" or "(",")", the point is NOT included in the graph

"•" or "[","]", the point IS included in the graph

★ between any two values on the numbe line, there is alway an infinite number of points between them.

③ interval notation

$(-\infty, 7)$

( )

[ ]

( ]

[ )

★ always use parenthesis next to infinity

$(-\infty, \infty)$ BUT NEVER $[-\infty, \infty]$ ※

Hawkes Practice (1):

$-41 < 5y - 1 \leq 29$

add 1 across all 3 parts

$-40 < 5y \leq 30$

divide all 3 parts by 5.

$\boxed{-8 < y \leq 6}$

, $(-8, 6]$

So 6 is included in this set but -8 is NOT in this set.

Hawkes Practice (2):

$7n - 9.8 < -8.4 + 6n$

$n - 9.8 < -8.4$

$\boxed{n < 1.4}$

☆ when solving inequalities, it is better to have the variable on th left side, so it's more natural to read and understand.