Inequality, Interval, and Set Notation

There are 3 different ways to write a set of numbers over a certain span.

#1 Inequality Notation

Use < , ≤, >, ≥ symbols to identify the span.

Open circle: <, >
Closed circle: ≤,≥

For example:

$4 < x \leq 10$

$x \geq -3$

$-\infty < x < -2$

#2 Interval Notation

Use parenthesis () or brackets [].

Open circle: parenthesis
Closed circle: bracket

For example:
(4, 10]
[-3, ∞)
(-∞, -2)

#3 Set Notation

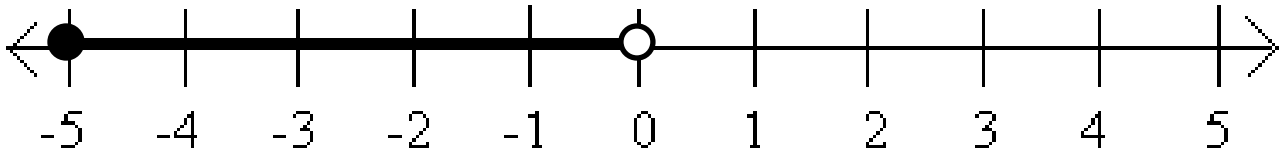
Use inequality notation in the form

$\{x| -1 < x < 5\}$

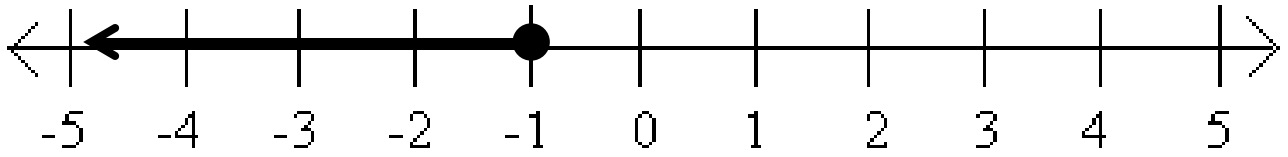
"such that" symbol

In words: x such that…
All values of x such that…

For example:
$\{x| 4 < x \leq 10\}$
$\{x| x \geq -3\}$
$\{x| -\infty < x < -2\}$

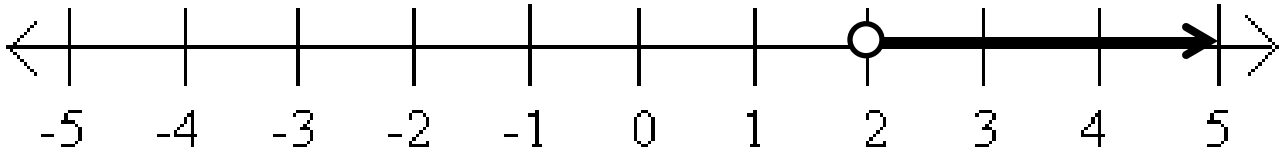


$-5 \le x < 0$ $\{x \mid -5 \le x < 0\}$ $[-5, 0)$



$-\infty < x \le -1$ $\{x \mid -\infty < x \le -1\}$ $(-\infty, -1]$

$x \le -1$ $\{x \mid x \le -1\}$



$2 < x < \infty$ $\{x \mid 2 < x < \infty\}$ $(2, \infty)$

$x > 2$ $\{x \mid x > 2\}$