Calculus - 1

Properties of Real Numbers and Bounds : lecture 1

Interval :-

Open Interval :- The set of all real No. between a and b is said to be form an open interval from a to be denoted by (a, b)

$$(a, b) = \{x : a < x < b \text{ and } x \in R\}$$

Closed Interval :- The set of all real No. b/w a and b including end points a and b

is called closed interval.

$$[a,b] = \{x : a \leq x \leq b \text{ and } x \in R\}$$

Semi closed and Semi-open interval

$(a,b] = \{x \quad a < x \leq b \quad x \in R\}$

$[a,b) = \{x \quad a \leq x < b \quad x \in R\}$

Infinite Intervals :- The set of all real No. x s.t. $x > a$ forms an infinite set and is denoted by (a, ∞)

$[a, \infty) = \{x : x \geq a \text{ and } x \in R\}$

$(-\infty, a) = \{x : x < a \text{ and } x \in R\}$

$(-\infty, a] = \{x : x \leq a \text{ and } x \in R\}$

$(-\infty, \infty) = R = \{x : x \in R\}$