1. Let R be the relation on the set R of all real numbers defined by a R b if and only if $|a - b| \leq$ Then R is _____.

Solution: $|a - a| = 0 < 1$

Therefore, a R a $\forall$ a $\in$ R

Therefore, R is reflexive.

Again a R b, $|a - b| \leq 1 \Rightarrow |b - a| \leq 1 \Rightarrow$ b R a

Therefore, R is symmetric.

Again 1 R [½] and [½] R1 but [½] $\neq$ 1

Therefore, R is not anti-symmetric.

Further, 1 R 2 and 2 R 3 but [1 / R3], [Because, $|1 - 3| = 2 > 1$]

Hence, R is not transitive.