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* Limit point (Accumulation point)

Let x be a point of $\mathbb{R}$. Then x is called a limit point of $A \subset \mathbb{R}$ iff every nbd of x contains a point of A distinct from x.

(In other words) iff every open subset G containing x contains a point of A other than x.

$\Rightarrow$

$\Rightarrow x \in G$, G being open $\Leftrightarrow A \cap (G - \{x\}) \neq \phi$

*. Derived set

The set of all limit points of a given set A is called "derived set of A" denoted by $D(A)$.

* closed set

Let A be a subset of $\mathbb{R}$. Then A is called closed set iff it contains all its ~~points~~ limit points.

In other words, the derived set of A is contained in $A \Leftrightarrow A$ is closed.

i.e. $x \in D(A) \Rightarrow x \in A$ i.e. $D(A) \subset A$..

* **Adherent point**

A point $x \in R$ is called adherent point of a subset A of R iff

every nbd N of x contains at least one point of A.

Symbolically $N \cap A \neq \phi$.

$\Rightarrow$ Every point of a set A is an adherent point of A.

The set of all adherent points of a given subset A of R is denoted by Adh(A).

* **closure of A** The set of all adherent points of a given subset A of R is called closure of A denoted by $\bar{A}$ or Adh. A .