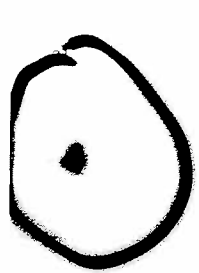


Reformulating M8 Convergence

We can use collections of points to determine whether a seq converges.

$$\text{Let } D_r(x) = \{y \in M : d(x, y) < r\}$$



Fact: $\lim_{n \rightarrow \infty} x_n = x$ iff

$$\forall \varepsilon > 0 \exists N_\varepsilon < \infty : x_n \in D_\varepsilon(x) \text{ for all } n \geq N_\varepsilon$$

$D_r(x)$ is called the open disk (ball, sphere) of radius r about x .