Definition 9.3. [OMT] *Given a sequence $(x_n)_n \subseteq X$ and $x \in X$,*

- *we will say that "$(x_n)_n$* ***converges to*** *x" if $\lim_n d(x_n, x) = 0$; we will also write $x_n \to_n x$ to indicate that the sequence converges to x.*

- *We will say that "$(x_n)_n$* ***is a Cauchy sequence"*** *if*

$$\forall \varepsilon > 0 \ \ \exists N \in \mathbb{N} \,,\ \forall n, m \geq N \ \ d(x_n, x_m) < \varepsilon \ \ .$$