Definition 17.2. *[2DT]Consider a set A, a function $f : A \to \mathbb{R}$ and a sequence of functions $f_n : A \to \mathbb{R}$. We will say that f_n converges to f pointwise if*

$$\forall x \in A \ , \ \lim_{n \to \infty} f_n(x) = f(x) \ \ .$$

We will say that f_n converges to f uniformly if

$$\forall \varepsilon > 0 \exists N \in \mathbb{N}, \forall n \geq N, \forall x \in A \ , \ |f_n(x) - f(x)| < \varepsilon \ \ .$$