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## theorem about continuous convergence

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Let  $(X, d)$  and  $(Y, \rho)$  be metric spaces, and let  $f_n : X \longrightarrow Y$  be a sequence of continuous functions. Then  $f_n$  converges continuously to  $f$  if and only if  $f_n$  converges uniformly to  $f$  on every compact subset of  $X$ .