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## Heine-Cantor theorem

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Let  $X, Y$  be uniform spaces, and  $f : X \rightarrow Y$  a continuous function. If  $X$  is compact, then  $f$  is uniformly continuous.

For instance, if  $f : [a, b] \rightarrow \mathbb{R}$  is a continuous function, then it is uniformly continuous.