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Continuous maps between topological spaces

A function between two metric spaces $f : X \rightarrow Y$ is continuous, that is,

Definition. Continuous functions between metric spaces

A function between two metric spaces $f : X \rightarrow Y$ is **continuous at** $p \in X$ if $\forall \epsilon, \exists \delta_\epsilon$ satisfying
$$\forall x \in X, d_X(x, p) < \delta_\epsilon \text{ we have } d_Y(f(x), f(p)) < \epsilon$$
$$\iff f(B(\delta_\epsilon, x)) \subseteq B(\epsilon, f(x))$$
If f is continuous at all $p \in E$, then f is continuous on X .

$\iff \forall U \subseteq Y$ open subset, the preimage $f^{-1}(U) \subseteq X$ is open.

Definition. Continuous maps between topological spaces

A map

$$f : X \rightarrow Y$$

between topological spaces is **continuous** if preimage of open sets in Y is open in X

$$U \in \tau_Y \implies f^{-1}(U) \in \tau_X$$

Current note has 0 direct children and 0 total descendants.

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 - Topological spaces
 - map
 - Continuous maps between topological spaces

And it has 12 siblings.

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