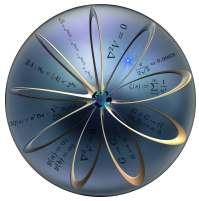

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Stone-Weierstrass theorem

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Let X be a compact space and let $C^0(X, \mathbb{R})$ be the algebra of continuous real functions defined over X. Let $\mathcal{A}$ be a subalgebra of $C^0(X, \mathbb{R})$ for which the following conditions hold:

1. $\forall x, y \in X, x \neq y, \exists f \in \mathcal{A} : f(x) \neq f(y)$
2. $1 \in \mathcal{A}$

Then $\mathcal{A}$ is dense in $C^0(X, \mathbb{R})$.

This theorem is a generalization of the classical Weierstrass approximation theorem to general spaces.