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[Dynamical system - Wikipedia](#)

Definition. A Lyapunov function for an autonomous dynamical system  $\dot{x} = f(x)$  with an equilibrium point at  $x^*$  is a scalar function:  $V: D \rightarrow \mathbb{R}$  that is continuous, has continuous first derivatives, is strictly positive, and for which  $-\nabla V \cdot f$  is also strictly positive. The condition that  $-\nabla V \cdot f$  is strictly positive is

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[Lyapunov function - Wikipedia](#)

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