



Math for the people, by the people.

quotient norm

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Let V be a normed vector space with norm $\|\cdot\|$. Let M be a closed subspace of V and V/M the quotient vector space.

The norm $\|\cdot\|$ induces a norm $\|\cdot\|_{V/M}$ in V/M , called the **quotient norm**, given by

$$\|v + M\|_{V/M} := \inf_{u \in v+M} \|u\| = \inf_{m \in M} \|v + m\|$$

Theorem - $\|\cdot\|_{V/M}$ is a norm in V/M iff M is closed in V .