# Fake Solution

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**(Exercise 12345).** Suppose $V$ is a finite-dimensional vector space and $U$ is a subspace of $V$ such that $\dim U = \dim V$. Prove that $U = V$.

*Proof.* Let $B_U := (u_1, ..., u_n)$ be a basis of U. As a basis, $B_U$ is linearly independent. Since $\dim U = \dim V$, the length of $B_U$ is the dimension of $V$. It follows that $B_U$ is, moreover, a basis of $V$, because every linearly independent list of the right length is a basis for a finite-dimensional vector space. □