

Provide a counterexample to justify each of the following false statements.

11. Every matrix is row equivalent to a unique matrix in echelon form.

12. Any system of n linear equations in n variables has at most n solutions.

13. If A is an $m \times n$ matrix and the equation $A\vec{x} = \vec{b}$ is consistent for some \vec{b} , then the columns of A span \mathbb{R}^m .

14. If \vec{u} , \vec{v} and \vec{w} are nonzero vectors in \mathbb{R}^2 , then \vec{w} is a linear combination of \vec{u} and \vec{v} .