

True or False?

- 1 When \mathbf{u}, \mathbf{v} are non-zero vectors, the $\text{span}\{\mathbf{u}, \mathbf{v}\}$ contains only the line through the origin and \mathbf{u} and the line through the origin and \mathbf{v} .
- 2 Any list of five real numbers is a vector in \mathbb{R}^5 .
- 3 Every matrix equation $A\mathbf{x} = \mathbf{b}$ corresponds to a vector equation with the same solution set.
- 4 If $A\mathbf{x} = \mathbf{b}$ is consistent, then \mathbf{b} is in the set spanned by the columns of A .
- 5 Any linear combination of vectors can always be written in the form $A\mathbf{x}$ for a suitable matrix A and vector \mathbf{b} .
- 6 If the coefficient matrix A has a pivot position in every row, then the equation $A\mathbf{x} = \mathbf{b}$ is inconsistent.