

T/F Three

Mark each statement True or False. Justify each answer.

1. A single vector by itself is linearly dependent.
2. If $H = \text{Span} \{ \mathbf{b}_1, \dots, \mathbf{b}_p \}$, then $\{ \mathbf{b}_1, \dots, \mathbf{b}_p \}$ is a basis for H .
3. The columns of an invertible $n \times n$ matrix form a basis for \mathbb{R}^n .
4. A basis is a spanning set that is as large as possible.
5. If a finite set S of nonzero vectors spans a vector space V , then some subset of S is a basis for V .
6. A basis is a linearly independent set that is as large as possible.