Quiz 4

September 20, 2018

Name (Last, First)

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1. Mark each statement True or False.

a. Let A be an $m \times n$ matrix.
The dimension of Col A is the same as the dimension of the column space of A^T. T F

b. Let $\mathbb{P}_4$ be the set of polynomials of degree at most 4.
Let V be $\{p(x) \in \mathbb{P}_4$ satisfying $p(1) = 0$ and $p(0) = 1\}$. Then, V is a vector space. T F

c. Let A be a 2×3 matrix and B be a 3×2 matrix.
If $AB = I_2$, then the columns of A are linearly independent. T F

d. Let T be a linear transformation.
The range of T is a vector space. T F

e. Let V be a vector space of dimension n.
A spanning set should have at least n vectors in it. T F

f. Let $\mathbb{R}^3$ be the vector space $\mathbb{R}^3$.....
A plane in $\mathbb{R}^3$ is a two-dimensional subspace. T F

g. Let $\mathcal{B}$ be a basis for a vector space.
In some cases, the coordinate mapping $\mathbf{x} \mapsto [\mathbf{x}]_{\mathcal{B}}$ is not onto. T F

h. Let A be a $n \times n$ matrix.
The null space of A is $\{\mathbf{0}$ (the zero vector)$\}$ if and only if A is invertible. T F