PURDUE UNIVERSITY · MA 26200
DIFFERENTIAL EQUATIONS AND LINEAR
ALGEBRA

QUIZ
Xinyu Liu
October 24, 2018

Quiz 08

Linearly Independent Sets, Bases

(7 points) For what value of k is the vector $(-1, 2, 1, 1)$ in the span of $(1, 2, 1, -1)$
and $(2, 2, 1, k)$? (**No partial credits**)
(A) 2.   (B) -2.   (C) 1.   (D) -1.   (E) None of the above.

The Dimension of A Vector Space

(8 points) Decide whether each statement is True or False. Here V is a nonzero
finite-dimensional vecotr space.(**No partial credits**)
(i) If $dim V = p$ and if S is a linearly dependent subset of V, then S contains
more than p vectors.
(ii) If S spans V and if T is a subset of V that contains more vectors than S, then
T is linearly dependent.

Eigenvectors and Eigenvalues

(5 points)If $\mathbf{x}$ is an eigenvector of A corresponding to λ, is $\mathbf{x}$ also an eigenvector
of A^3? If so, what is the eigenvalue accordingly?
(**No credits** for the answer without necessary explanation.)

Quiz 08

Special number: _____   Name: _____
Section Number: _____   PUID: _____