

Proof V-1

Accepted

Not Accepted

I affirm this work abides by the university's Academic Honesty Policy.

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Print Name, then Sign

- First due date **Thursday, February 18**.
- Turn in your work on a separate sheet of paper with this page stapled in front.
- Do not include scratch work in your submission.
- There is to be **no collaboration** on any aspect of developing and presenting your proof. Your only resources are: you, the course textbook, me, and pertinent discussions that occur **during class**.
- Follow the Writing Guidelines of the Grading Rubric in the Course Information Sheet.
- Retry: Only use material from the relevant section or earlier.
- Retry: Start over using a new sheet of paper.
- Retry: Restaple with new attempts first and this page on top.

*"Obvious" is the most dangerous word in mathematics.* – Eric Temple Bell

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V-1 (Section LDS) Extend Theorem DLDS by proving the following theorem.

1. **Theorem 1** *DLDSPV (Dependency in Linearly Dependent Sets, Previous Vectors)* Suppose that  $S = \{\mathbf{u}_1, \mathbf{u}_2, \mathbf{u}_3, \dots, \mathbf{u}_n\}$  is a set of non-zero vectors listed in order. Then  $S$  is a linearly dependent set if and only if (without changing the order of the vectors) there is an index  $t$ ,  $1 \leq t \leq n$  such that  $\mathbf{u}_t$  equals a linear combination of the vectors  $\mathbf{u}_1, \mathbf{u}_2, \mathbf{u}_3, \dots, \mathbf{u}_{t-1}$  which have subscripts smaller than  $t$ .

Read carefully. Note that Theorem DLDS in the text does not require the set  $S$  to be written in order and that Theorem DLDSPV requires the vectors be written in order and that you may not change that order.

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