

Proof V-1

Accepted

Not Accepted

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

Print Name, then Sign

- First due date **Thursday, September 30**
- 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 of the text 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

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 an **ordered** set of non-zero vectors. 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 .

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.
