

## Proof LT-2

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 **Friday, December 4**.
- \*\*\* You **may** discuss this problem with others but may not discuss how to write it up or show others your written work.
- Turn in your work on a separate sheet of paper with this page stapled in front.
- Do not include scratch work in your submission.
- Follow the Writing Guidelines of the Grading Rubric.  
([http://math.ups.edu/~bryans/Current/Fall\\_2009/290inf\\_Fall2009.html#tth\\_sEc5.1](http://math.ups.edu/~bryans/Current/Fall_2009/290inf_Fall2009.html#tth_sEc5.1))
- 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.

Ignoramus, n. A person unacquainted with certain kinds of knowledge familiar to yourself, and having certain other kinds that you know nothing about. – Ambrose Bierce, 1890

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LT-2 (You may use material up through Section IVLT)

Given vector spaces  $U$  and  $V$ , prove that a function  $T : U \rightarrow V$  is a linear transformation if and only if  $T(\alpha \mathbf{u}_1 + \mathbf{u}_2) = \alpha T(\mathbf{u}_1) + T(\mathbf{u}_2)$  for all vectors  $\mathbf{u}_1, \mathbf{u}_2 \in U$  and all scalars  $\alpha \in \mathbf{C}$ .

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