# Linear Algebra quiz 1

name:
id:

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1. Let matrix $A$ to be:

$$\begin{bmatrix} 1 & 1 & 0 \\ 2 & 4 & 5 \\ 1 & -3 & -7 \end{bmatrix}$$

Find the $LDV$ decomposition of $A$.
2. Find the inverse of matrix:

$$\begin{bmatrix} 1 & 0 & 2 \\ 4 & 1 & 5 \\ 2 & -3 & 0 \end{bmatrix}$$

3.Show that $I - BA$ is invertible if $I - AB$ is invertible.
4.Show that $A$, $B$ are invertible is equivalent to $AB$ is invertible.
5.Prove that the permutation matrix $P$ keeps the inner product. That is:

$$(x, y) = (Px, Py)$$