Note Title 3/5/2009

Know "what does it take to prove" at least

1. $B = A^{-1}$

   $AB = \ldots\ldots = I$

2. A, B commute

   $AB = \ldots\ldots = BA$

3. To prove LHS = RHS

   $$\begin{aligned} \text{LHS} &= \ldots \\ &= \ldots \\ &= \ldots \\ &= \text{RHS} \end{aligned}$$

4. A is nonsingular

   (i) A^{-1} exists

   or (ii) $Ax = 0$ implies $x = 0$

5. V is subspace of ..

   $\forall u, v \in V$ ......

   end at $\alpha u + \beta v \in V$

6. Lin. Dep.

Find / argue why $\exists\, \alpha_1, \cdots, \alpha_n$, not all zero

s.t. $\alpha_1 u_1 + \cdots + \alpha_n u_n = 0$

7. Lin. indep. of u, v, w

Start: Let $\alpha u + \beta v + \gamma w = 0$

. — — — — .

$\alpha = \beta = \gamma = 0$

8. L.T.

$T(u+v) = \cdots = T(u) + T(v)$

$T(\alpha u) = \cdots = \alpha T(u)$

9 (u, v, w) is a basis of V

(i) Lin. indep.

(ii) $V = \langle u, v, w \rangle$ (span argument)

or $\dim(V) = 3$ (dimension argument)