

Math 290A, Tuesday, April 21 Problem Session

Thu - IVLT

Fri - Problem Session

Mon - VR (RQ)
- Writing

Tue - MR

Wed - Exam LT

ILT. T10 $T: U \rightarrow V$

$T^{-1}(V)$ subspace of $U \iff \underline{v} = \underline{0}$.

$(\Leftarrow) \underline{v} = \underline{0} \Rightarrow T^{-1}(\underline{v}) = T^{-1}(\underline{0}) = \underset{\substack{\uparrow \\ \text{subspace}}}{K(T)}$

$(\Rightarrow) T^{-1}(V)$ subspace of U .

$\Rightarrow \underline{0} \in T^{-1}(V) \Rightarrow \begin{matrix} \cancel{T(\underline{v}) = \underline{0}} \\ T(\underline{0}) = \underline{v} \end{matrix}$

And $T(\underline{0}) = \underline{0}$ So $\underline{v} = T(\underline{0}) = \underline{0}$

Spring 2019 Exam LT 2

$$T: P_1 \rightarrow M_{22}$$

(a) T injective?

Strategy: compute $K(T)$

Then $K(T)$: injective $\Leftrightarrow K(T) = \{0\}$

$$K(T) = \{0\} \rightarrow 0 + 0x \quad \underline{\text{Yes}}$$

Easier than $T(\underline{x}) = T(\underline{y}) \Rightarrow \dots \Rightarrow \underline{x} = \underline{y}$

LT.M60

$$Z: U \rightarrow V, \quad Z(\underline{u}) = \underline{0}$$

