Linear Algebra (T→4)

① . was done in class. (Plus-Minus Theorem).

②. ⓐ: True, to be basis, it needs to span V and be linearly independent as well.

so, we'll remove all vector which are L.C of other vectors.

ⓑ.→ if it is L.I but not basis, so, we can say it doesn't span over V.

So, for that we can add individual L.I. vectors.

③→ How to prove?

④→ Can get $B_{ij}(\alpha)$ from elements of B using elementary op.ⁿ

Since both are fundamentally same. So,→

span → equal
still L.I.
dimⁿ same as B

→ B_{ij} = Basis.

Su	Mo	Tu	We	Th	Fr	Sa
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
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28	29	30				

(5). (Without showing spanning of sets)

→ We'll prove that S in L.I. and it has the same dim. as V.

(6). (a) → linearly dependent.

(7). → $f \Rightarrow R_4[x]$ & $f(\alpha) = f(\beta) = f(\gamma) = 0$

then → $(x-\alpha), (x-\beta), (x-\gamma)$ devides f.

So → $f = (x-\alpha).(x-\beta).(x-\gamma).g(x)$ ↳ degree(1)

so, Basis ⇒ $\{(x-\alpha).(x-\beta)(x-\gamma),$

$(x-\alpha)(x-\beta).(x-\gamma).x\}$.

x^4

$\rightarrow \{x^3, -x\}$

$\{2, -x^2 - x^4\}$

$K_1. \rightarrow \{2x^4 + x^3 \; x^2 - x + 1\}$

$\{2x^4 + x^3 + x^2 - x + 1\}$

(8): Real sequence. → fn from Nat. no. to Real no. $\boxed{f: N \rightarrow R}$

(12). (a). w_1 & w_2 are subspaces of V.

(c). Since $W_1 \cap W_2$ will have only one fn → ~~Y=0~~ ~~contrad~~ $Y=0$

so, maybe ~~$W_1 \cap W_2$~~

(b) $\dim.(W_1 \cup W_2) = \dim.(W_1) + \dim(W_2) - \dim(W_1 \cap W_2)$

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Cont.