REMARK ON CHAPTER (4)

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If $\dim(\mathbb{V}) = \mathbf{n}$, **and** $\mathbf{S} = \{\underline{\mathbf{v}}_\mathbf{1}, \underline{\mathbf{v}}_\mathbf{2}, ..., \underline{\mathbf{v}}_\mathbf{k}\} \subseteq \mathbb{V}$. **Then:**

(1) $\mathbf{k} > \mathbf{n}$, **then :-**

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(i) S is L.D.

(ii) S

may span $\mathbb{V}$	**exp.** $\mathbf{S} = \{(\mathbf{1},\mathbf{2}),(\mathbf{2},\mathbf{3}),(\mathbf{3},\mathbf{5})\}$, **since** $\{(\mathbf{1},\mathbf{2}),(\mathbf{2},\mathbf{3})\}$ **span** $\mathbb{V}$
may can't span $\mathbb{V}$	**exp.** $\mathbf{S} = \{(\mathbf{1},\mathbf{2}),(\mathbf{2},\mathbf{4}),(\mathbf{3},\mathbf{6})\}$, **since there is no subset of S that span** $\mathbb{V}$

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(2) $\mathbf{k} < \mathbf{n}$, **then :-**

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(i) S can't span $\mathbb{V}$.

(ii) S

may be L.D.	**exp.** $\mathbf{S} = \{(\mathbf{1},\mathbf{2},\mathbf{3}),(\mathbf{2},\mathbf{4},\mathbf{6})\}$, **since** $(\mathbf{2},\mathbf{4},\mathbf{6}) = \mathbf{2}(\mathbf{1},\mathbf{2},\mathbf{3})$
may be L.I.	**exp.** $\mathbf{S} = \{(\mathbf{1},\mathbf{2},\mathbf{3}),(\mathbf{3},\mathbf{5},\mathbf{7})\}$, **since** $\underline{\mathbf{v}}_\mathbf{1} \neq \underline{\mathbf{v}}_\mathbf{2}$.

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(3) $\mathbf{k} = \mathbf{n}$, **then by Theorem 12 :-**

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S

(i) **S isL.I.** $\Longleftrightarrow$ **S span** $\mathbb{V}$	**exp S** $= \{(\mathbf{1},\mathbf{2}),(\mathbf{2},\mathbf{3})\}$
(ii) **S isL.D.** $\Longleftrightarrow$ **S can't span** $\mathbb{V}$	**exp S** $= \{(\mathbf{1},\mathbf{2}),(\mathbf{2},\mathbf{4})\}$