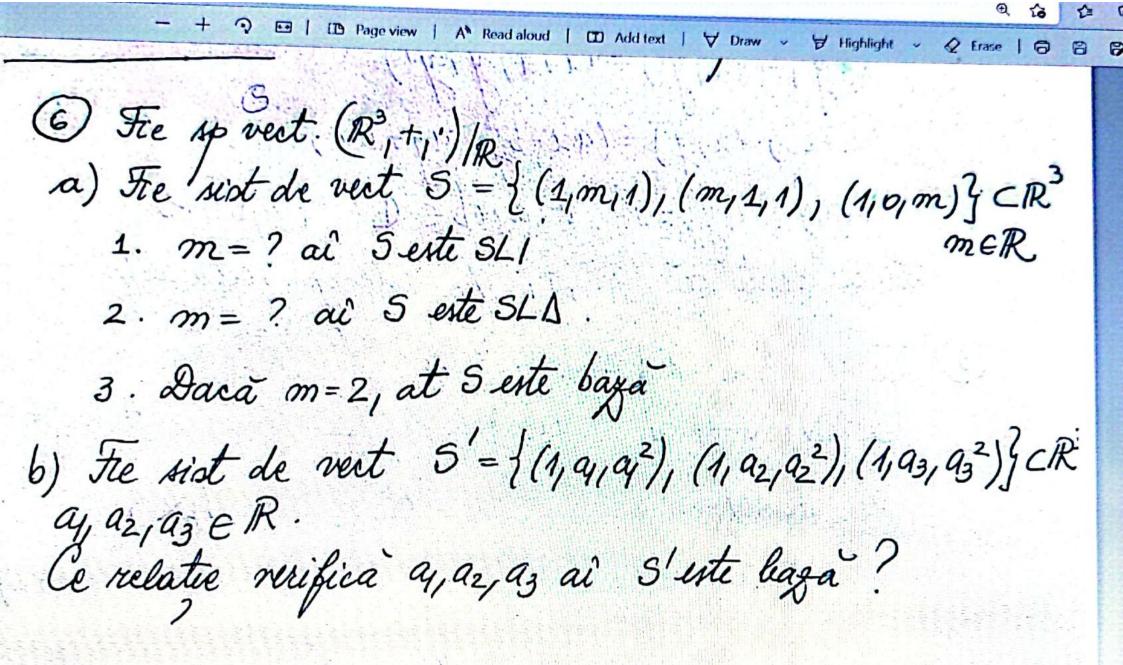
Preliminarii (Viti)/K , SCV subm. + of 54 = sistem limiar independent • 5 s.m. sistem limiar dependent (SLD) ←>

[ ] x<sub>1</sub>,.., x<sub>n</sub> ∈ S

[ ] a<sub>1</sub>,.., a<sub>n</sub> ∈ K, mu toti muli ai ∑ a<sub>1</sub>x<sub>i</sub> = O<sub>V</sub> · 5 s.m. sistem de igeneratori (5G) =>  $\forall x \in V, \exists x_1, x_n \notin S$   $a_1, a_n \in \mathbb{K} \text{ at } x = \sum_{i=1}^{m} a_i x_i$ Not V = 257 Daca 5 este 56 finit, atuni Vs.n. sp. vect. finit generat.

5 s.n. baza => 1) S este 5L1 T) Fie (1+i')/1K sp. vect. finit generat.

B1, B2, but a B1, B2 baye => card B1 = card B2 = m = dim1KV m = mr. max de vect din SLI = mr. mim. de vect dim SG  $\frac{0882}{}$  a)  $\forall$  subm  $\neq \phi$  a unui SLI este SLI b) Y supram. a unui SLD este SLD. c) Ysutiam a unui SG leste SG d) Den / 4 SG (finit) se juite extrage o laxa e) & SLI (finit) se posité completable o baxa 0853 (V,+1)/1K, dim KV=n, B+{v1, v2, 1, vm3



(F) The Apr. (R3) +1') /R a) Fe 19 = { (1/1/0), (1/-1/-1), (2/0/-1)} Ja a extraga din 31 un SLI maximal 5, 3i sa ac extinda acesta la o baya. b) Fre 5, = {(42/3)} La se axate sa este 311 si mu este 36. (8) Fix  $(R_2[X] = \{P \in R[X] \mid grad P \neq 2\}, +1 \}/R$ a)  $f = 2x^2 - 3x + 4$ .  $\Rightarrow B_1 = \{f, f', f''\}$  baya. Generalizare. b). B= {1, x-1, (x-1)2 & baya. Generalizate. (3) Fie (R2,+1')/1R a) B = { (1,2), (3,4) } baxa b) S = { (1,2), (3,4), (4,2) & este SLD, 56

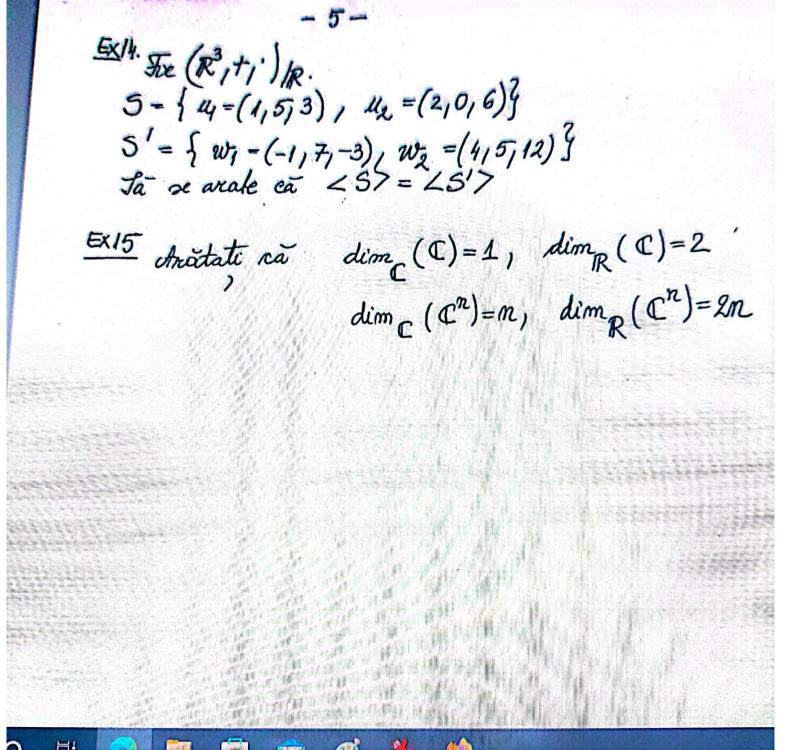
c) S'= { (1,4) } este SLI, mu e 56. La se extenda la o laya. d) 5" = { (1,-1)/(2/3)/(3/2)/(1/4) } este 56 Ta se extraga o baza din 5".

(10) Fie (M2(R),+1)/R. a)  $\mathcal{B} = \left\{ \begin{pmatrix} 1 & 1 \\ 1 & -1 \end{pmatrix}, \begin{pmatrix} 0 & 5 \\ -1 & -1 \end{pmatrix}, \begin{pmatrix} -1 & 0 \\ 3 & -1 \end{pmatrix}, \begin{pmatrix} \alpha & 1 \\ 1 & -1 \end{pmatrix} \right\} \subset \mathcal{M}_{2}(\mathbb{R})$ <-? ai Beste baza

2. Sa se extraga din 5'un 5L1 max vi acesta pa se extinda la b baya.

( (C(R),+, )/R

- a) 5 = {f11,f2,f3}, f1(x)=1, f2(x)=sinx,f3(x)=cesx 5 este 511
  - b) 5' = {g11g21g3} 1g1(x)=11g2(x)=1001x, g3(x)=1001\frac{2}{2} 5' esta SLD.
- c)  $5'' = \{h_1, h_2, h_3\}$ ,  $h_1(x) = e^x$ ,  $h_2(x) = e^{-x}$ ,  $h_3(x) = chx$  5'' este SLA.  $= e^x + e^x$
- 12) Fie sp vect (R", +, ·)/R cu baya {f1, ·, fn}. Ja si arate na sp. vut (€",+,·)/R are baga {f1, if1, , fm, ifm3.
- (3) Fre (Y1,+1:)/1K sp vect si B, -{e1, , en g baya (Y2,+1:)/1K sp vect si B2 = {f1, y fm g baya Să x arate ră op vect (V, x V2, +1:)/1K are baya B = {(e1,0 v2), ... (en,0 v2), (ov, f1), ... (ov, fm) } si deci dim (1, \* V2)= dim, V1 + dim V2 = or+on



TEMA 2 (seminar) (R4,+1) IR, Ro = repende ranonic 5= { (1,0,-1,2), (1,1,1,1), (2,1,0,3), (3,2,1,4)} a) 5 este SLD b) Fa se extraga s'un sli max si sa se extinda la lun reper R in R R)  $R_0 \xrightarrow{A} R / A = 2$ d) saise afle roord lui x = (1,2,3,74) in rap cu R (l2(R),+1)/R  $V' = \left\{ A = \left( \frac{u}{2} \right) \middle| u, x \in \mathbb{R} \right\} \text{ suprect}$ a) Precipati o baya in V b) Determinati V un subspatiu complementar

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