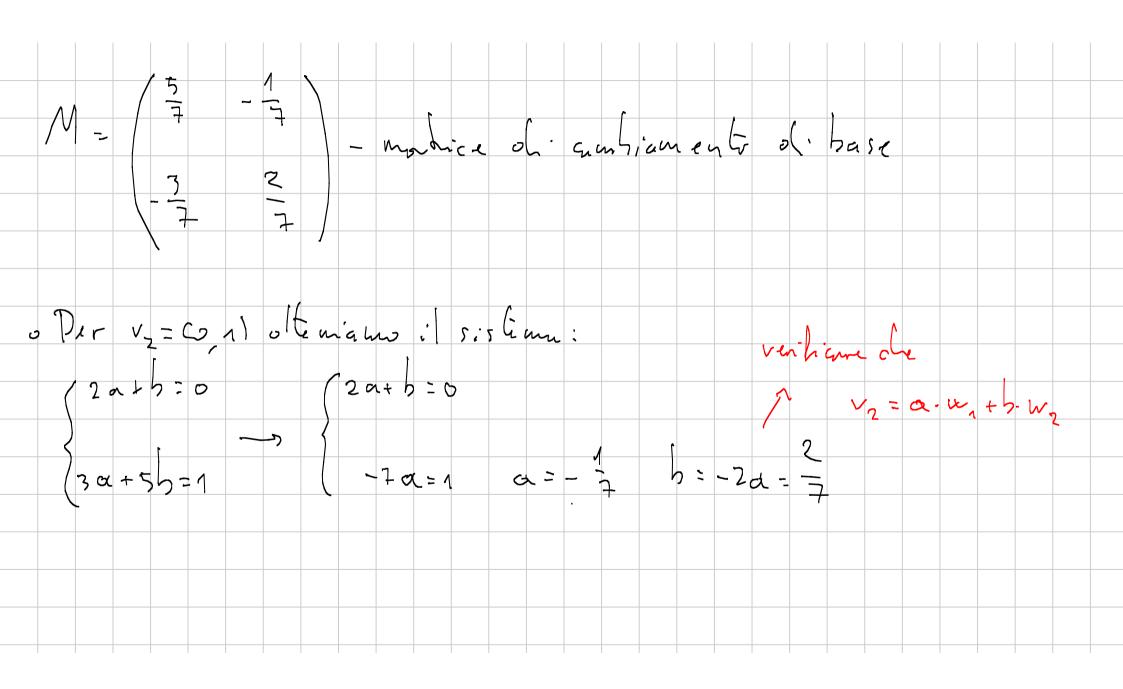
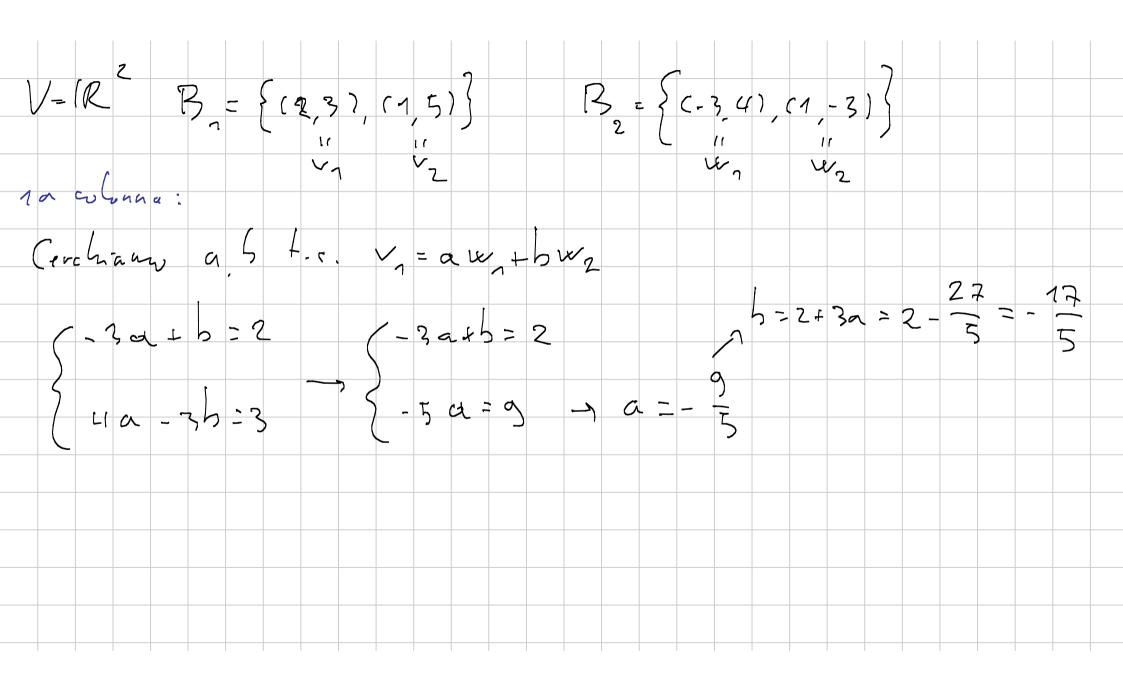
Lezione 25-10 10/25/2019 toorcilatione: combiament. In base V sp. ve lov. a la olim (1) = n B= {v1..., v, 3, B2= {w1, ..., wn} se vel a lon v si scrive in mode unico V= x, V, + X2 V2 + . + X, V = Y, W + ... + Y, W,

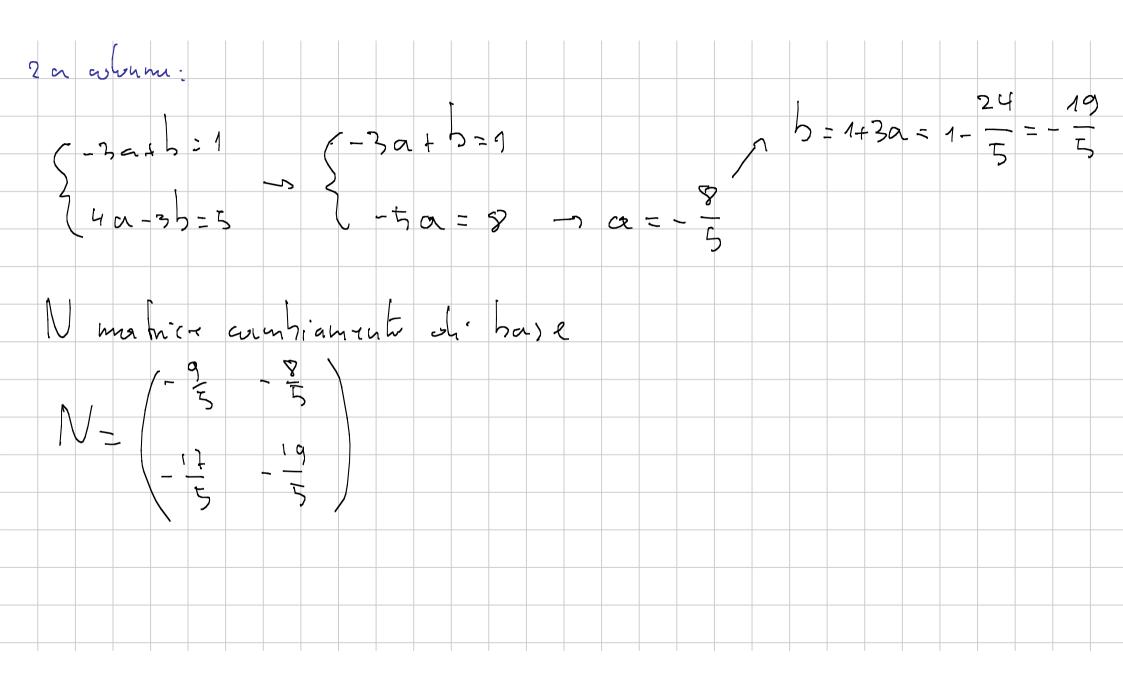
Muanice of anniament of hase of B, a Bz e'

I a munice nxy take the M. (x1) = !! v. speth nspeth a Br $B = \{(1,0),(0,1)\}, B = \{(2,3),(1,5)\}$ Esercizio: V=R

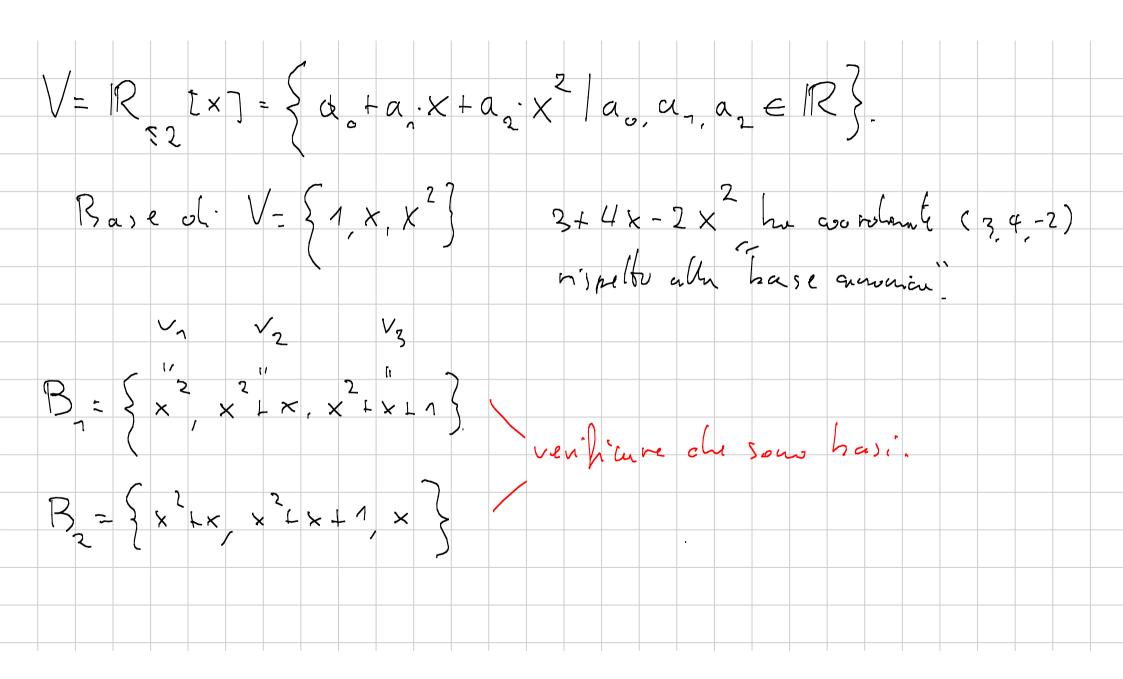
MEM2X2 (TR) La primer colonne hu come co-efficiente la coordinate Livarispets a B La reamon colonna un come coeff. le cocosina te divz vinetto a B V-yliann saivere V, = a W + bez (10) = a. (23) + h. (15)



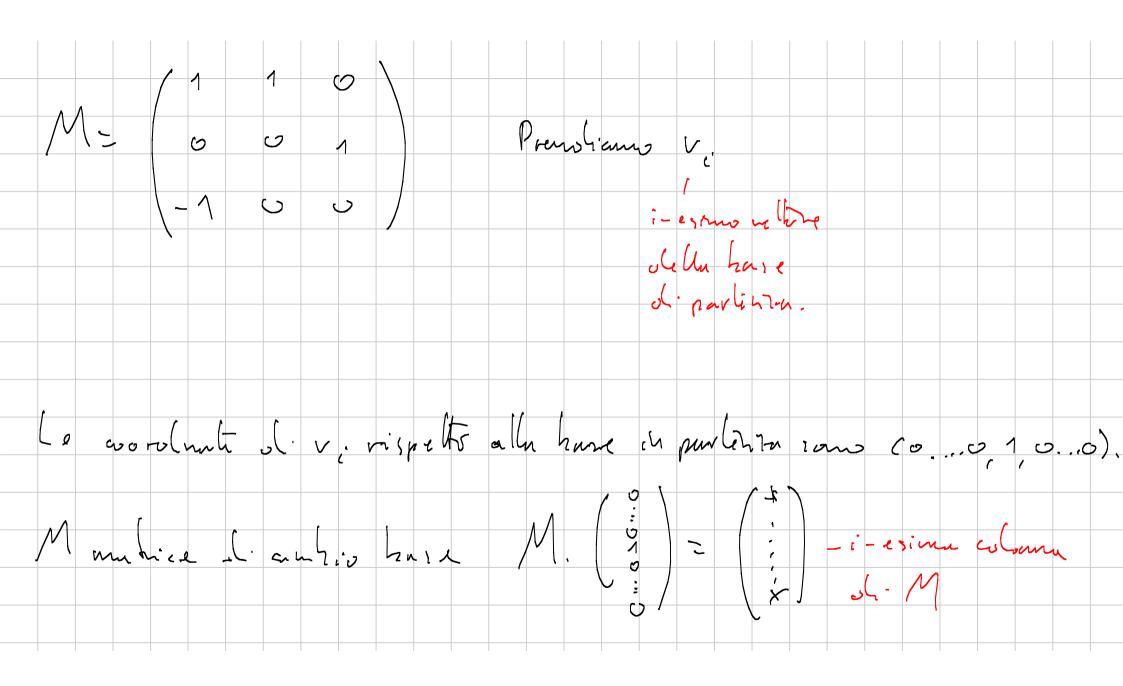




755: Se Mé la manice de compis de hase du Ba Barrio No la matrice de mantre de have de Boa Bo on humanice di ampio sure on BaB



1 a whom: X = a (x2+x)+b(x2+x+1)+c X (a,b,c)=(1,0-1) miche x2=(x2+x)-x $\chi^{2} = (\chi^{2} + \chi) - \chi = 1.(\chi^{2} + \chi) + 0.(\chi^{2} + \chi + \eta) - 1.\chi$ 2a comma x2+x= a (x2+x)+ b (x2+x+n)+ (.x (n,b,c)= (1,00) 3 a whom x2+x+= a (x2+x)+b(x2+x+a)+ c.x (a,b,c) = (0,1,0)

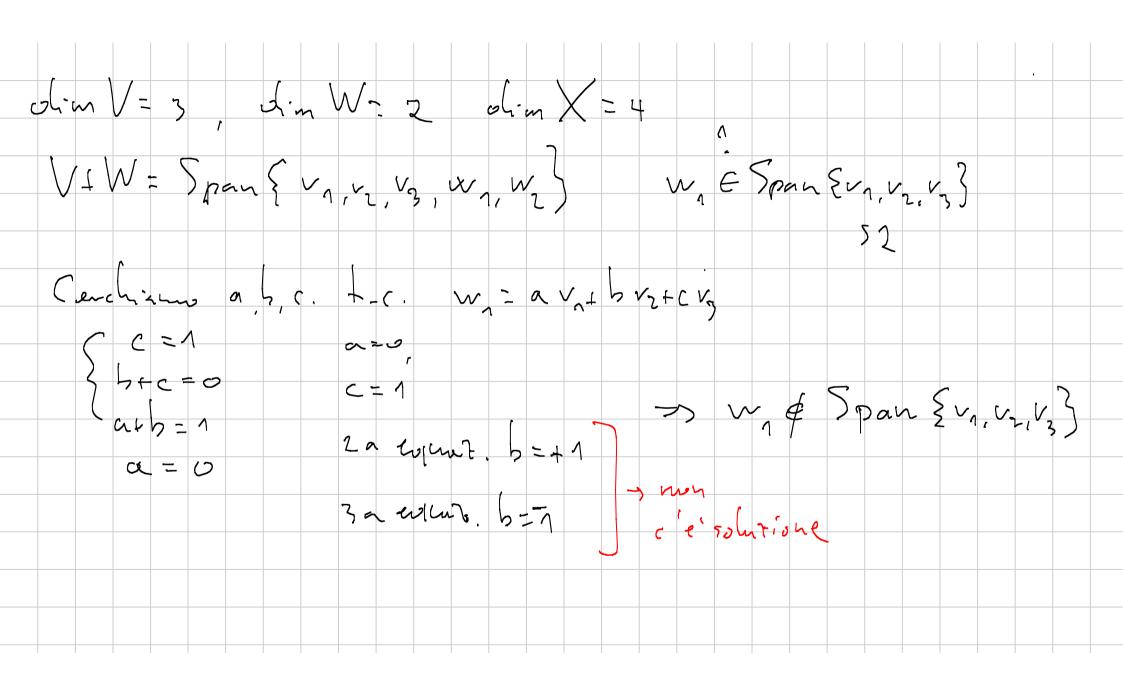


o Somme intersetion e déterminatione de basi X sp. vet. V, W zold spani vettomili di X. De Cerminure V+W, VnW, asholame le olmensioni e culculurare hasi V= Span { (1,2,3) }, W= Span { (1,10), (0,2,1) } Formula ol. Gracomun: dem (V+W)=dim(V)+dim(W)-dim(VnW)

2 ars. possibility 1 = 2 allow dom(VnW)=1 = 2 ario en

iii ario VeW 31 olm (V+W)=3 allow olm (VnW)=0 Verilians se V, E V, aisè venhichans se V, e Span {m, m} Cuchianno abt.r. v= aw + b W2 (123) = a(110) + b(02-1)azn I siglemme mon hur soln rion; a+20=-5+2 a+25=7 カニーマ ainst v & Span { w, w2} = W

Siame nel anso B) VAW= 803 V+W= [R] base {w, w, v,} V-Span { (0,04 1) (0,1 1,0) (1,1 0,0) } W- Span { (1,0,1,0), (0,1,0,1)}

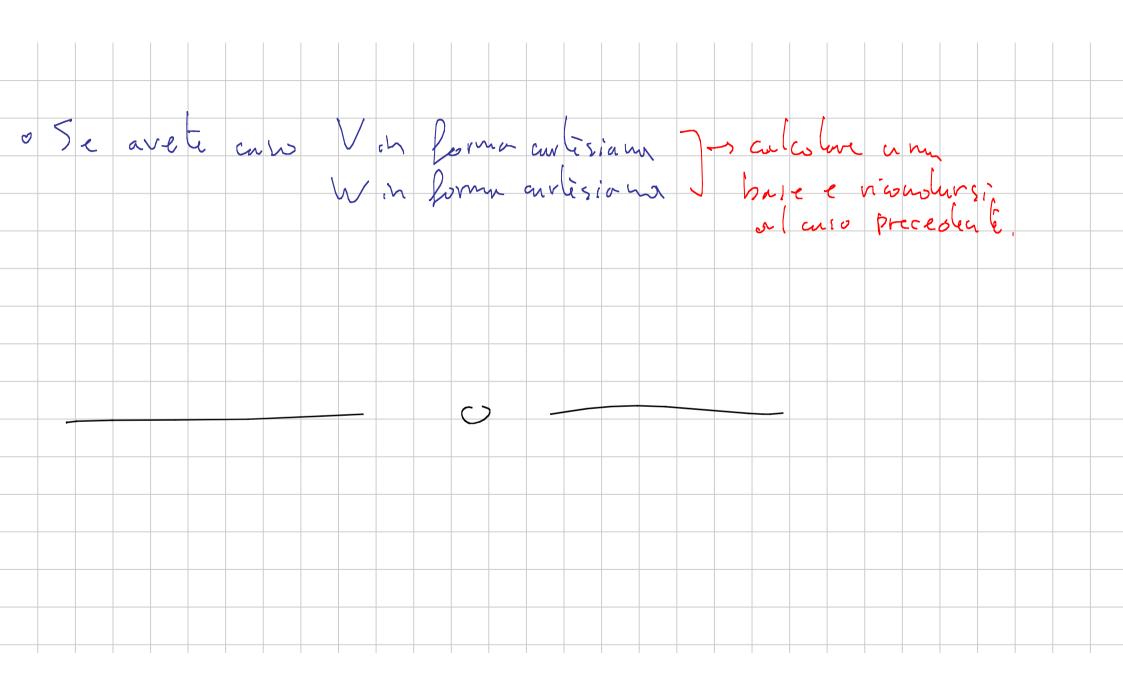


5pm {v, v, w3, w3 = N = X = N + W = X = 1R. Sm(V+W) = c1 = dm(V) + dim(W) - dm(VnW) in Jorma cartesiana, Wolate da base. $V = \{ (x, y, z) \in \mathbb{R} : 2 \times +3 y = 2 \}, \quad V = \{ (1, -1, 1), (0, 1, 0) \}$

olim V=2 dim W=2. Metoule 1) Récondurs: al caso precedente: Colcoliano una bare of - V, and e sempio {(1,02),(0,13)} Missolo 2): wet/ wet/ -> mon significan che V/W= {03

Jim(V+W) = Jim(V) + Jim(W) - Jim(VnW) riverifica V=W aon saccer anso A protale W, 4/, W24/

Lin(VnW)=1. Voglinus houre une bus e L. VnW. Cerdiamo a 6 non entranti nulli talé che a xxx + b xx e V $a \cdot (1, -1, 1) + h \cdot (0, 1, 0) = (a, b - a, a)$ 2a + 3(b - a) = a = 2a + 3h - 3a - a = 0 = 0Those who was not nulla cab)=(3,2) VnW=Span{3w,12w2}= Span{(3,-1,3)}



Dinensione de nucles e inmagne de applianni linean! Sel: V-, We applianione lineure four Ve W sp. ve Horiali. Kir(g) = {veV | fcu) = 0}, Im(f) = {weW | = veV +.c. fcu = w} Formula. dim (Im()) = dim (V) - dim (Ker()).

« y: R = (x,y) = (x-y, 2x+y) q e lineare. un ha sa harioni halle. $(x,y) \in \mathbb{Z}$ $(x,y) \in \mathbb{Z}$ $(x,y) \in \mathbb{Z}$ of Chercellon - pe'iniellina -> shin (2m(cp))= 2 - cp e suage thro Date g: V-, W. Se olim V z olim V et mon pur essere iniethra
Se olim V z v et mon pur sargethra

Segue on former per dans me de nades e inmany me ω ψ: N ~ IN ψ(x,y,z)=(x-y,y-z,z-x) (x,y,z) c (x-y=0) (x-y=0) (x,y,z) c (x,z) c (x

x=y=== In questos
cu so CX.4, 2) e ler q => (1.1)=(1.1) D, m (Kerg) = 1 D, m (1 m y) = 2 Im (e) = Span & e(=) 4(1), 4(0) = {(0), (-1), (-1)} Base di Imp) sami oluter on (ad 11 mpit) { (-1) (-1) }

In general, oliver f., V-JW likewe e En. ... base d. V Im (f) = Span { f(v_1),..., f(v_n)} general Im (f).