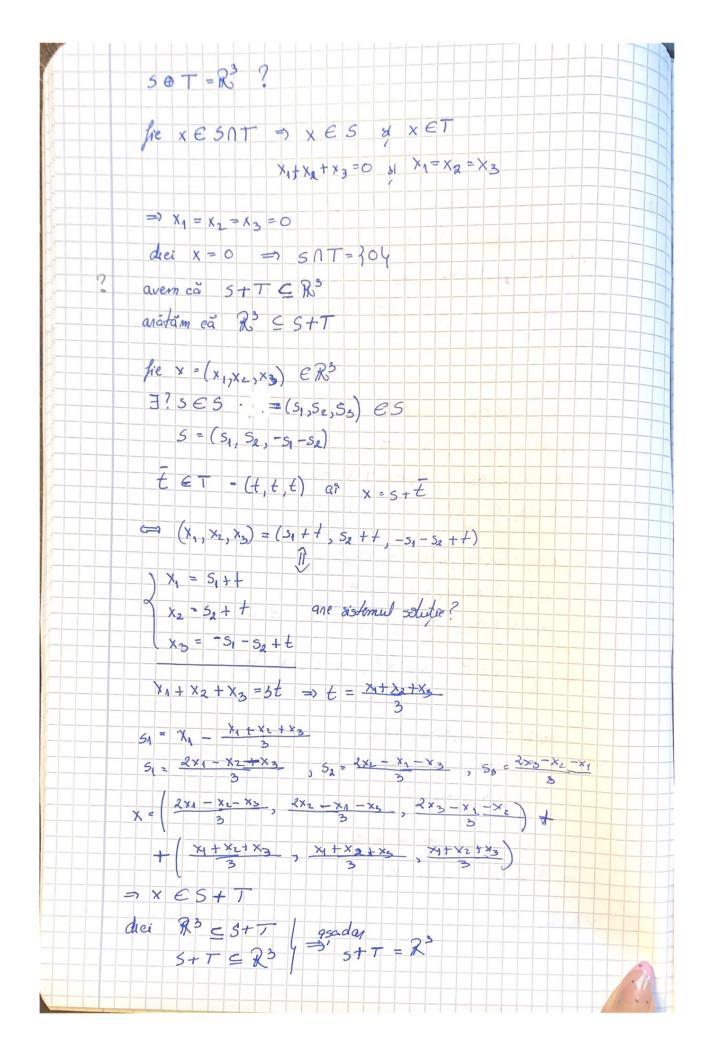
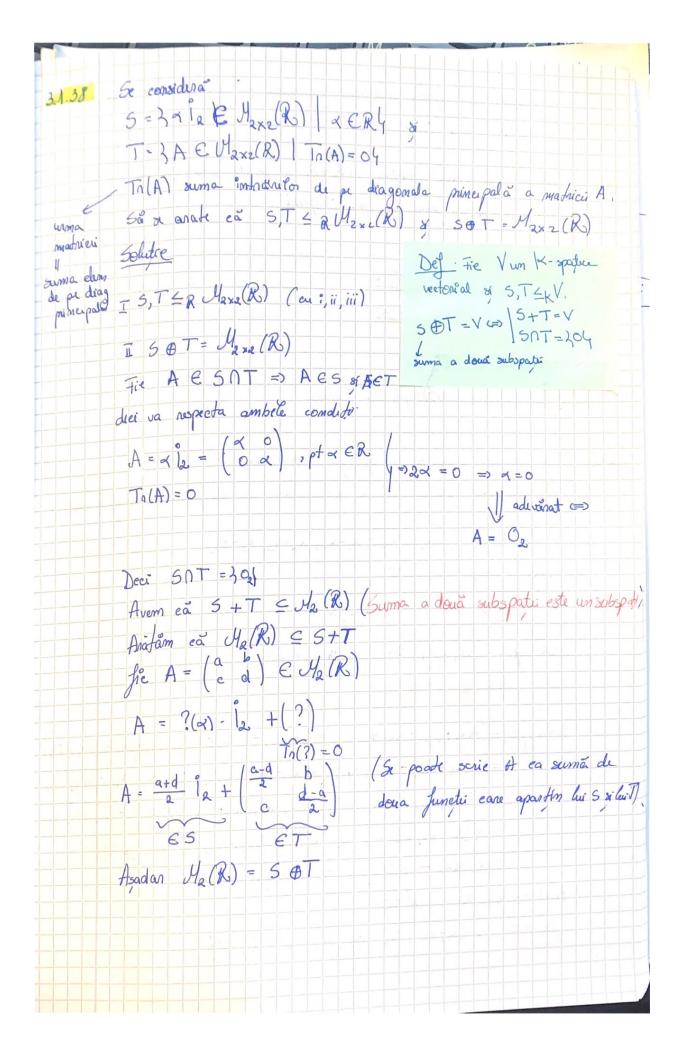
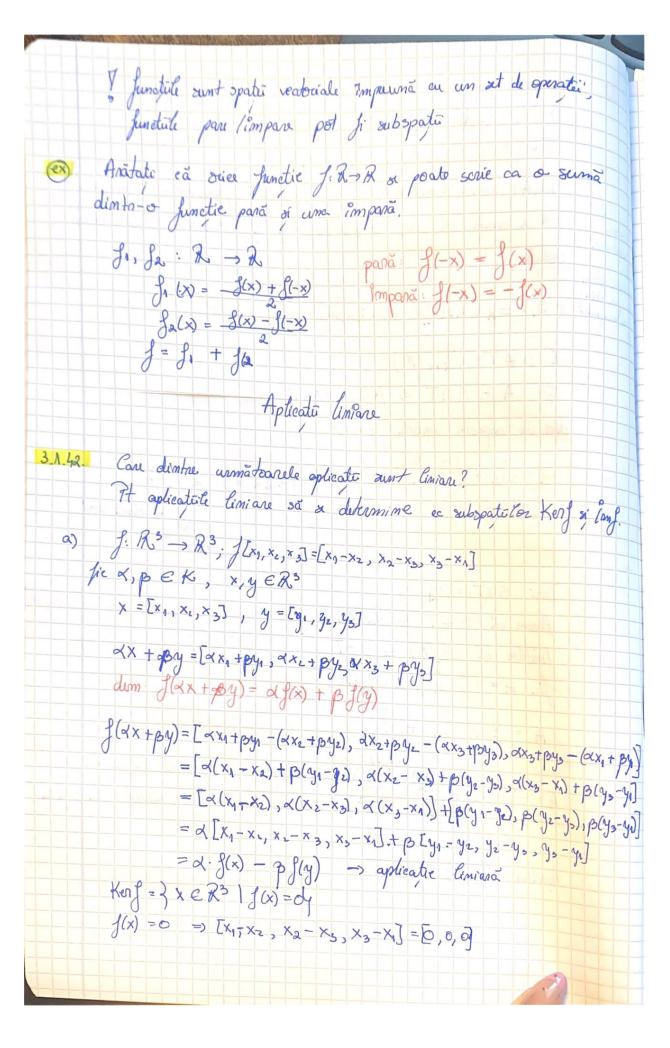
Subspoti vectoriale Sumo diperto 3.137 Se consider à submedimile 5,T CR3 date pun 5-3[x,x2,x3] E R3 | x,+x2+x3=04 T=3[x1,x22x3] @ R3 | X1=X2=X54 Så se anote ea S,T < R3 & SOT - R3 Solutie a) i) 03 € 5 03=(0,0,0) 0+0+0=0 =0 =0 =5 i) fie x, y ES, x+y ES x=[x1,x2,x3], x1+x2+X3=0 4=011, 42, 45], 41+42+43=0 x+y= [x1+y1, x2+y2, x3+43] X1+47+1. X2+42+ x3+45 = x1+x2+x3+y1+y2+y3=0 es iii) fie dEB, XER3, X=[x,1x,x3] XXES XX = [XX, XX, XX] dx1 + dx2 + dx3 = $d\left(X_1 + X_2 + X_2\right) =$ d.0=0 =) q.x es ⇒ 5 subspatin a lui R³ ~ Amalog T

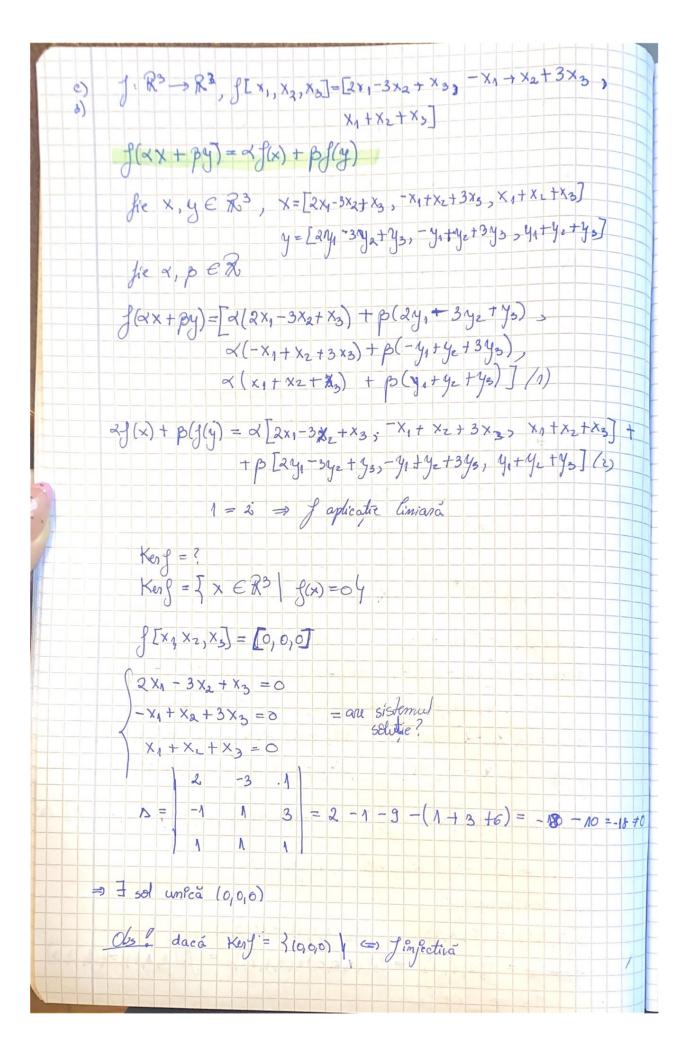






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\begin{cases} x_1 - x_2 = 0 \\ x_2 - x_3 = 0 \end{cases} \iff \begin{cases} x_1 = x_2 \\ x_3 - x_1 = 0 \end{cases} 
\begin{cases} x_1 - x_2 = 0 \\ x_2 = x_3 \end{cases} \Rightarrow x_1 = x_2 = x_3
\begin{cases} x_3 - x_1 = 0 \\ x_3 = x_1 \end{cases} \Rightarrow x_4 = x_2 = x_3
                          Kery = ] x = [x1, x2, x3] e R3 | x1 = x2 = x54
                      \lim_{x \to \infty} \int_{-\infty}^{\infty} \frac{1}{x} = \frac{1
                           f(x)=y => \ x1 - x2 = y1
                        imf=3yER3 y+42+4,=09
b) f: \mathbb{R}^3 \to \mathbb{R}^3, f[x_1, x_2, x_3] = [x_1 - 1, x_2 + 2, x_3 + 1]

f: \mathbb{R}^3 \to \mathbb{R}^3; X = [x_1, x_2, x_3, x_3]
                                                                                                           y = [y1, y2, y3]
                            fie α, ρ ∈ R : f(αx + β η) = af(x) + β f(y)
                       XX+ By = [ax, + By, , xx+ Byz, xx+ Bys]
                      f(\alpha x + \beta y) = [ \langle x_1 + \beta y_1 - 1, \alpha x_2 + \beta y_2 + 2, \alpha x_3 + \beta y_5 + 1 ]
= [ \langle x_1, \alpha x_2, \pi x_3 | + \beta y_1, \beta y_2, \beta y_5 | + [-1, 2, 1] (N)
                       df(x) = [x x1 -d, xx2 +22, xx3 +d] = [x1, x2, x3] + [-x, 2x d]
                       3 /3 = [p(3/1-p, py2+2p, B)3+p]= p[y1, y2, y2] + [p,2p, p]
                       df(x)+pf(y)= (xx, , αx, αx3) + [-α, 2α, α]+p[y, y, y, y, ]+[-β, 2β, β] (2)
                                    (1) + (2) => I mu este applicater liniare
                    sau contra exemplu
                       f(1,0,0) = (0,2,1), f_2(1,1,1) = (0,3,2)
                         \int \int \int \int \int \int (0,0,0) + (1,1,1) = \int \int \int (2,1,1) = (1,3,3)
                                                 13 + Sitf2
```



l'mg =?.
fie y ∈ R3 J? x ∈ R3 ai f(x) = y f(x) = y = 3 $\begin{cases} 2 \times 1 - 3 \times 2 + 2 = 1 \\ 1 \times 1 + 2 + 3 \times 3 = 1 \\ 2 \times 1 + 2 \times 2 + 3 \times 3 = 1 \\ 2 \times 1 + 2 \times 2 + 3 \times 3 = 1 \end{cases}$ $\Delta \neq 6 \Rightarrow \exists !$ solutie $\forall y$ $\Rightarrow |m| = R^3 \Rightarrow f(x) = f(x)$ $\int_{1}^{2} \mathbb{R}^{2} \rightarrow \mathbb{R}^{3} \int_{1}^{2} \left[x_{1} + x_{2}, x_{1} - x_{2}, 2x_{1} + x_{2} \right]$ fie x, y E R2, X = [x, x2], y = [y1, y2] XX + By = [xx, + By, , ax, + By, , ax 3+ Bys] J(xx+By) = L Xx1+By1 + xx2+By2, xx1+By1-(xx2+By2)) $2 \times x_1 + 2 p_1 y_1 + 2 x_2 + p_2 =$ $= \left[\times (x_1 + x_2) + p(y_1 + y_2), \times (x_1 - x_2) + p(y_1 + y_2), \times (x_1 - x_2) + p(y_1 + y_2) \right] =$ $= \left[\times (x_1 + x_2) + p(x_1 + y_2) \right] =$ = [x(x,+x2), x(x,-x2), x(2x,+x2)]+[p(y,+y,), B(y,-y2), , 3(241+43) = 2 · g(x) + B g(y) = fap. limiana Keng = 3 x E R3 \ g(x) = 0 4 $\begin{cases} x_1 + x_2 = 0 \\ x_1 - x_2 = 0 \end{cases} \qquad \begin{cases} x_1 = -x_2 \\ x_1 = x_2 \end{cases} \qquad \stackrel{(=)}{=} \qquad x = \begin{bmatrix} 0 & 0 & 0 \end{bmatrix}$ $\begin{cases} 2x_1 + x_2 = 0 \\ 2x_1 = -x_2 \end{cases} \qquad \begin{cases} 2x_1 = -x_2 \\ 2x_1 = -x_2 \end{cases}$ => Keng = 7 [0,0,0]

fie y E R 3,7? x E R2 a? f(x) = y im 9 = 3 g(x) 1 x EV4) im 9 = 3 g(x) | x & 2 (motam o variobile on to scriam X1 + X2 = y1 (motor o variobité

X1 - X2 = y2 in fundie de t) 12X, +x2= 43 (+) 41 + 42 + 43 = 4x1 + x2 [m] = } [7, 4, 4] [R3 | 4, = X, + X2 , Y2 = X, - X2 , Y3 = 2x, -12 f: R² → R, f[x1,x2] = x1²-x2² J_[1,0] = 1 - 0 = 1 , J_[2.1,2.0] = 2 \$22.0] = 4-0 = 4 , fata.0] = 2 f. + f2 => mu e ap limiara P: R² → R², f[x1, x2] = [a1, : X1 + a2,1 ×2 , a1,2 ×1 + a2,2 ×2] unde a,, a,,, a,,, a,, e & B sunt fixate 1) fap limiana (amatog) 2) Kenf =? [mf =? Kenf = 3 x ER2 / f(x) = 04

