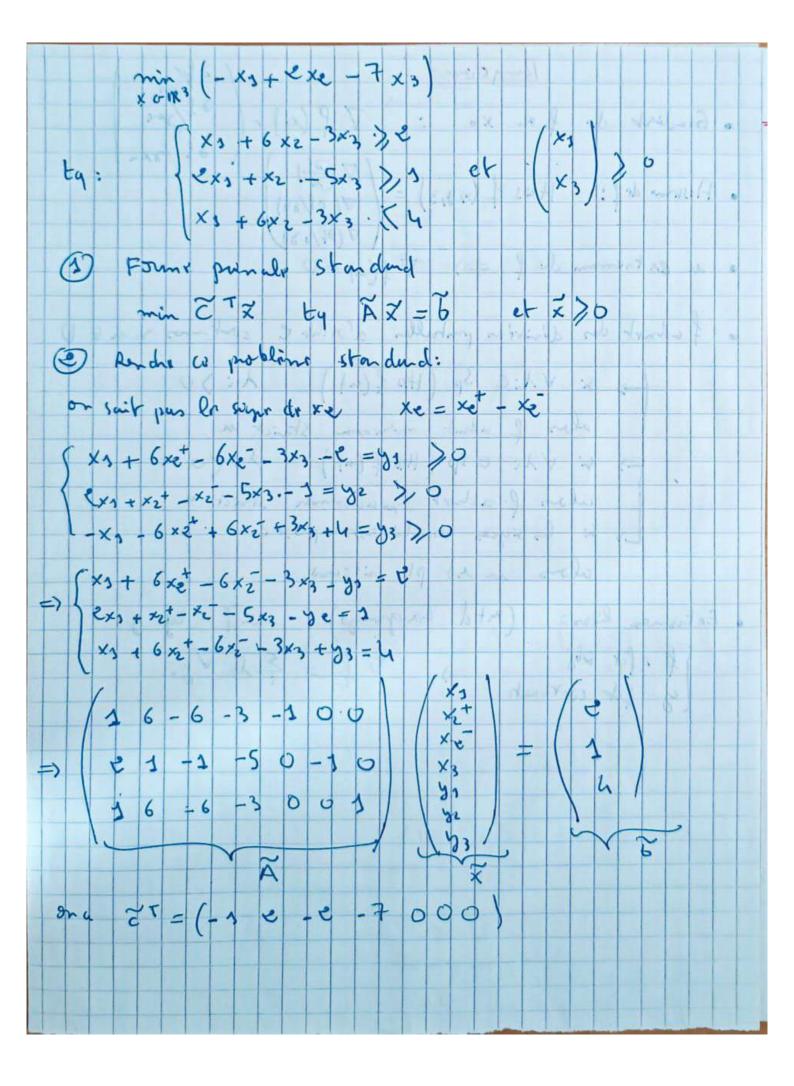
Optimisation: Exo(1): 0=(1) trouver la distince estre et le plu d'équation 1 Mtd giomitrique d (0, plan) = 1 ax + 6 yo + c 30 + d) = (e + 1+3-4) = 0,53 (2) Mtd Analy to que (La grange) $\begin{cases} f(x,3,3) = (x-3)^{2} + (y-3)^{2} + (3-3)^{2} \\ g(x,3,3) = ex + y + 33 - 4 \end{cases}$ grad (f(x,8,3)) = 1 grad (g(x,8,3)) 3 = 1 3 = > (2(x-1)= 2) 2 (y-1)= 1) e (3-1) = 3 1 33 = 1 29 (ex+y+33=4) ex+y+33=4

(f()) = 12 + 12 + 4 + 4 1 2 1 1 = 4 $d = \sqrt{\frac{2}{2}} = 0,53$ ExB F(x) = XT (Ax - b) avec x, b EIRT X EIRT A EUX Calalar. le grud (F(x)) F(x)= (2,5,1--,2) F(x) = 23 (ass xs + - - + asnxn - 6) + - + 12 alons: Vx F(x) = (3F + 3F + - + 3F) Vx F(x) = 00000000 ds (an + aze + - . + and + - + hn (am + Vx F(x) = AT Rob OL:



Regions:

Regio · u extremm de f => Vf(u) =0 - fachnet des dénivires purballes d'order e continues en a & U si VI: E Sp (Hess & (u)) di >0

alos & admit minimum strict u

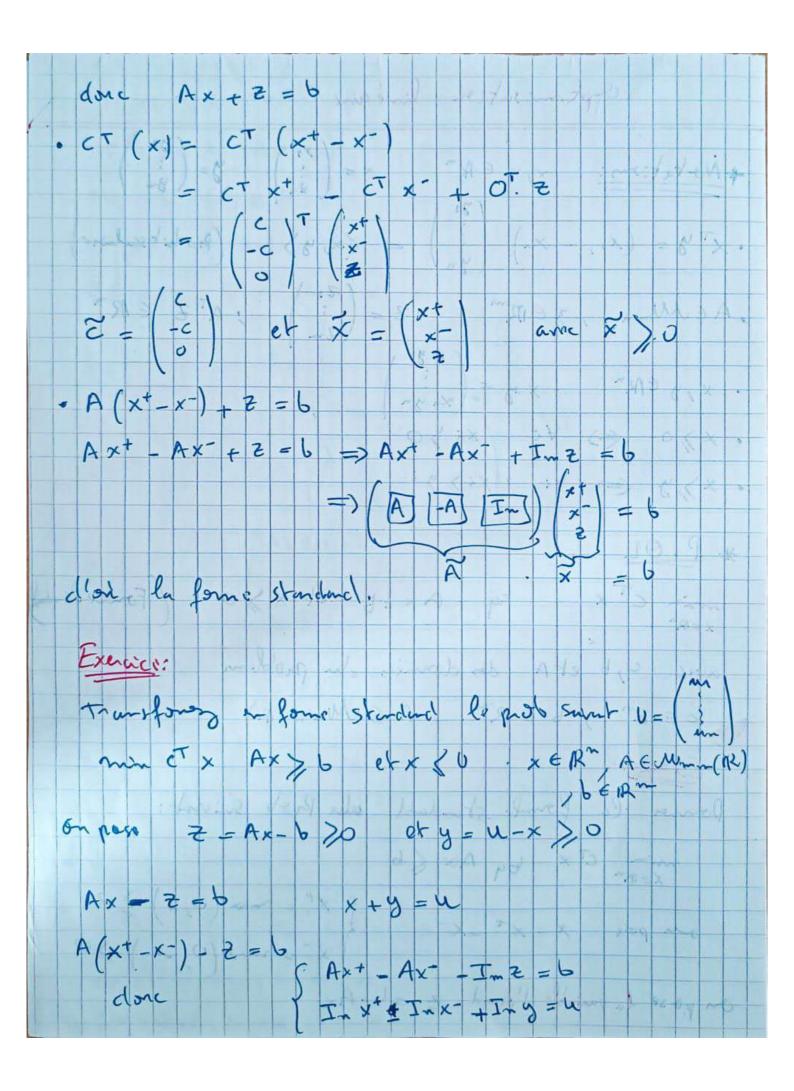
si VI: E Sp (Hess & (u)) di >0

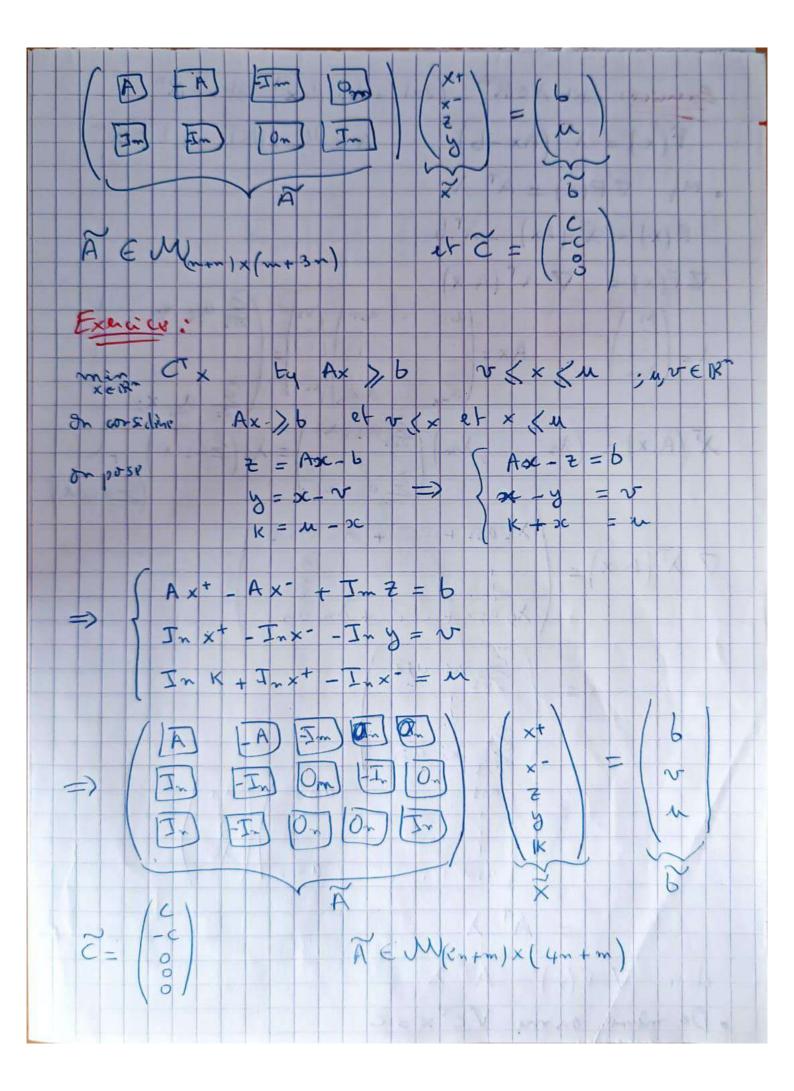
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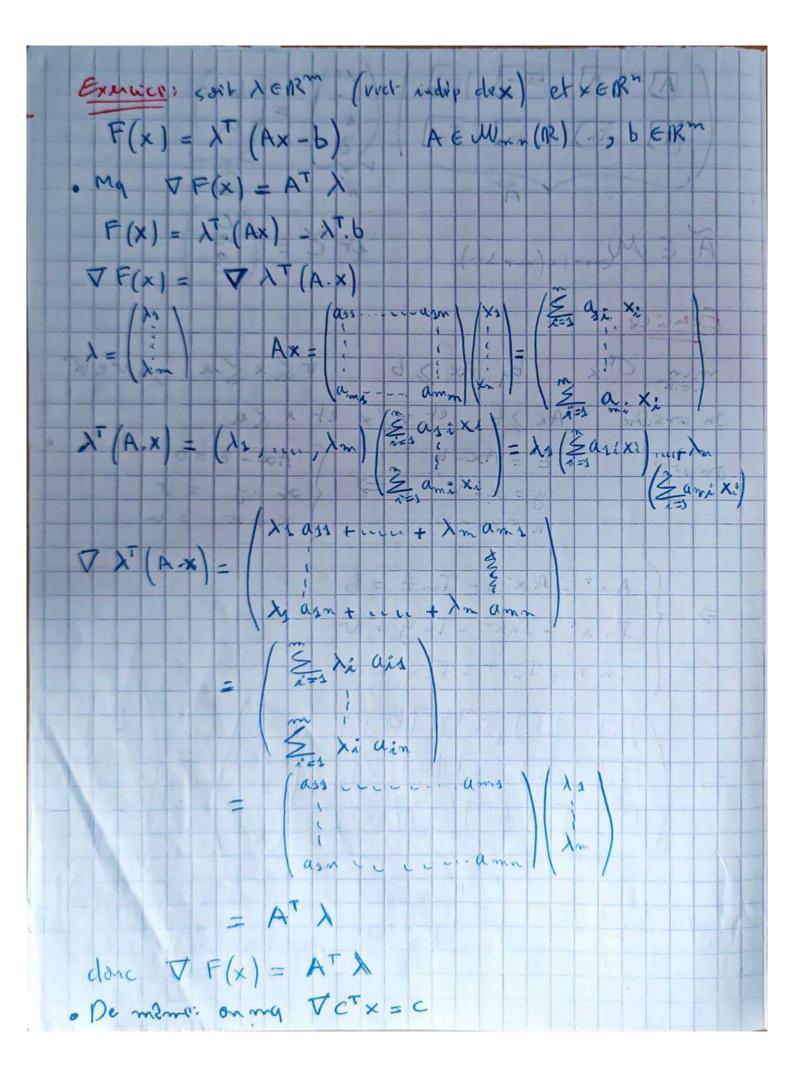
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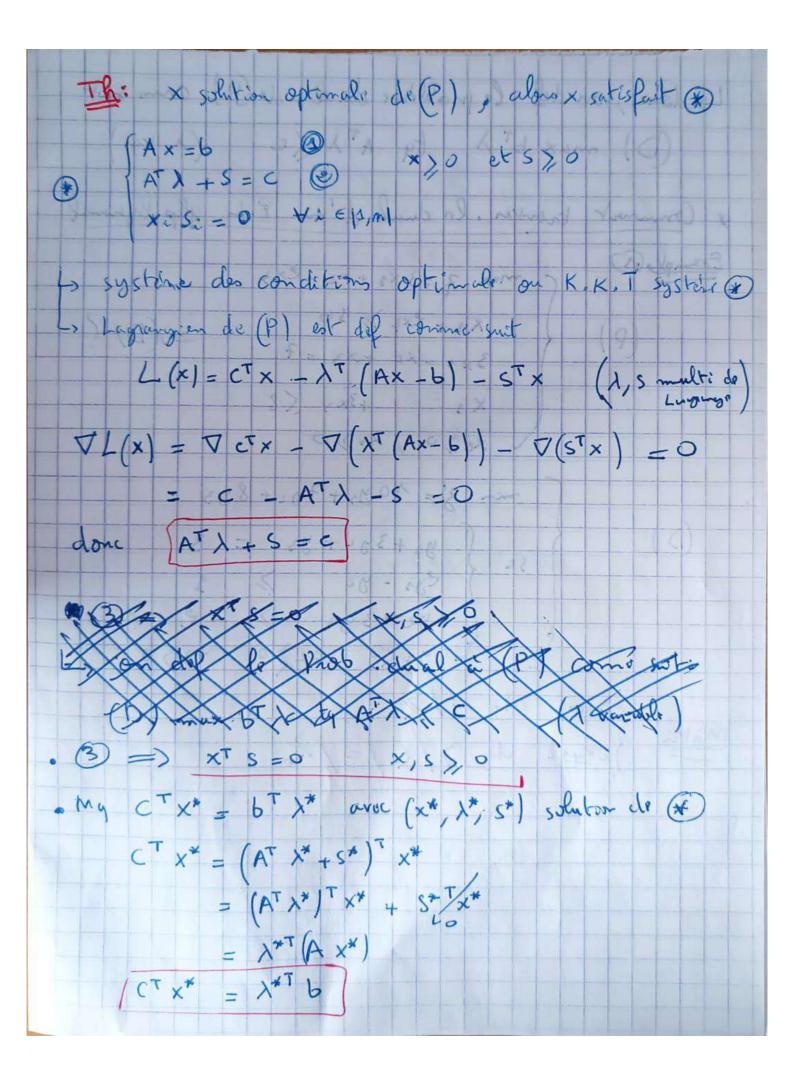
Los & bosques do di est appositi alons in st pt aitagmi Extremes likes: (mtd Lagrango) min f tog y (f: fot obj g: fot contrastr

Optimisation linians $x = \begin{pmatrix} x_1 \\ y_2 \end{pmatrix}$ $y = \begin{pmatrix} y_1 \\ y_2 \end{pmatrix}$ x, y e Rm + Notations: · XTy = (x1, ... xn) (i) = (x,y) (Produit sculming , A & Mm, , 3 & mm = = (2) , ATZ ERT x, y ERM xy = (x, yn) . x > 0 (=> \fi xi > 0 ty Ax=b etx>0 CTX c, b et A des données du problèms CEIRM, BERM AE Minn (R) · Ca forme standard tale Prob Sirvet: 2/35 min CT x ty Ax 66 (x-= max (0,x) 20 x = x + _xon back on post la variable d'étand Z = 6-Ax









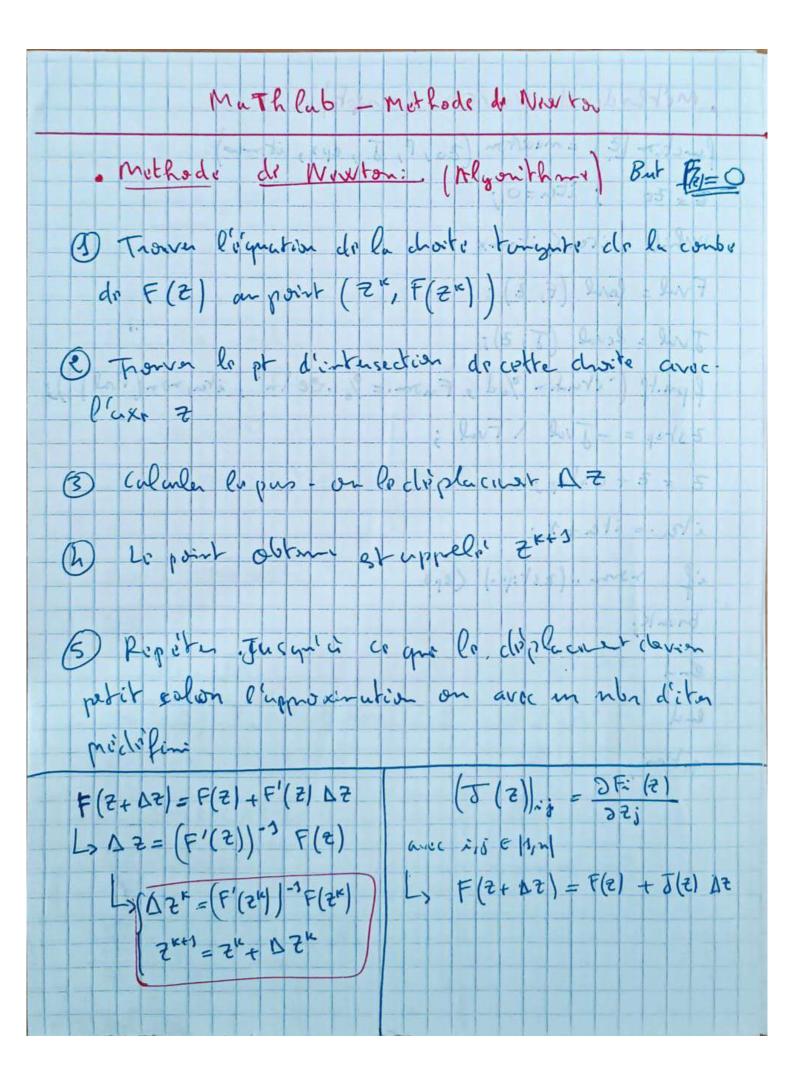
Lo danc, on def le moblèmer dual de (P) com suit (D) max bt x ty ATX &c (x van) ommer trover. In dual d'un P. L glys lymal Examples mux 2 = 3 x 1 + 2 - 2x3 X 1 + ex 2 / 10 (9) =>(D)? 3x1-x2 +x3=7 X27,0 A, X3 0 min 3 = 10 ys + 7 yz + 8 yz (D ys+3y2+ y3 = 3 (Etupo 3 cho = /2 Mama

Exemplice) MIMA SETUNCO chy = / 2 Min Z = ×1+ 3×2 - 2×3 X1+ exe > 12 P ex1 - 2 x 3 < - 10 x1), 0 x 2 4 q x 3), 0 max 21 = 32 yn +8 y2 0-10 ys y3 + ey2 + ey3 & 1 eys -3 yz = 3 ye + 2 y3 < - e 7360 1270 Dz gay

* solution sons marlab. d'an P.O. min c\x ty \ \Az\x b

Aey.x = beg

lb \x \x u b x = lippnoy (c, A, b) X = limpay (C, A, b, Aeg, bey) x = lingroy (c, A, b, Acy, boy, lb, ub) x+19/4 = 3/2 Frends min -x - 8/3 ty x - y <2 C = [-1 -1/3] -xx -y < 1 -x -y (-1 -x + y (2 -1) (x (1,5 -0,5 (b (1,25 b= [= 1 <1 -3 e]; A= [1 1 1 1 1 1 1 1 1]; Acy = [1 1/2); 60 = 5/2 -0,5] Nb = [-0,5 7,85]



morthody do western (script) function [2] = mounton (20, F, J, eps, it must Z = 20 ; itu=0; while iter (it max Frul = faral (F, Z); Jval = feval (5, Z); f prents ("iteration % d, From. = % reln", iten, non (Fral)); Zstep = - Jval | Fral; Z = Z + Z step; ila = ita+1; if nom. (2 stop.) (eps broak; end end notur.

Ruy Marlab: · lalaf de fet: function [variables de sorkie] = test [[van d'etrier]]! · appel fd: var-outs, van-out2, ...] = test van-int, vanint, of else and nep = imput (chosin un mbr vom s?!); if nop = = 0 chisp ('von avez tape la réporte 0'); else desp (' vons avez tupe la riporse 1'); end meltiplication mut bonde for Som = 0 , % antiulinatur E = B * C for i= 3: length (x) melto dixora alt pun elt sm + = x (i); F = C. *D plat (x,y) while som = 0 : % miles logium: flag while not (fin)

