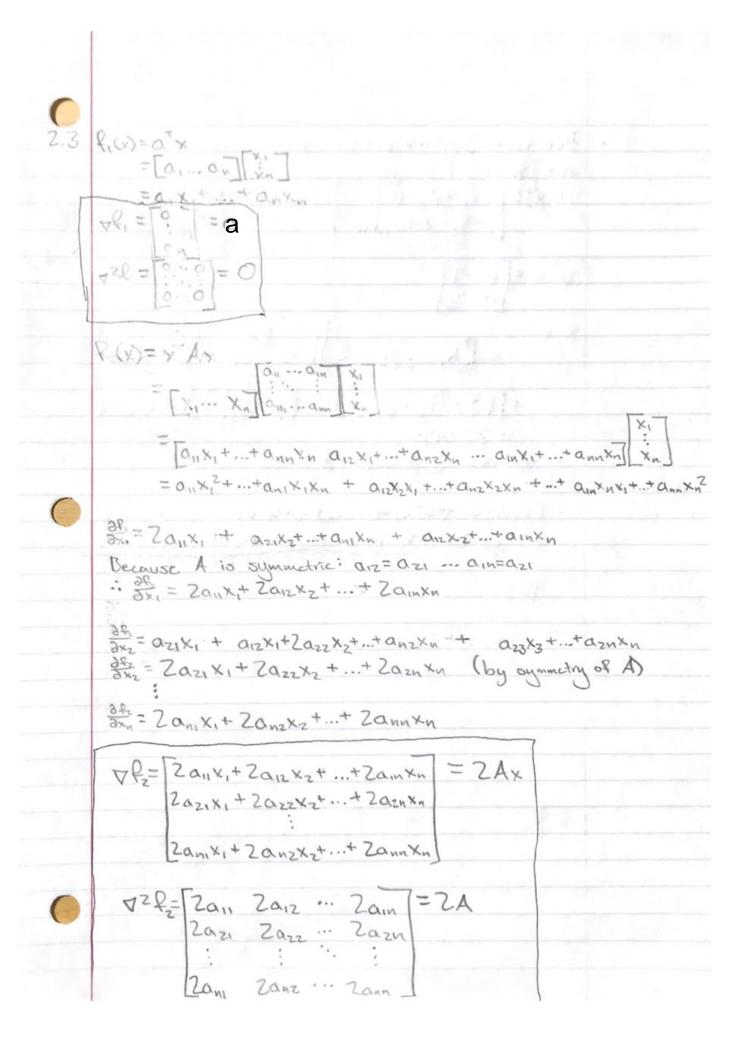


2.2 f(x)=8x1+12x2+x12-2x2 Af= 8+5x1 12-4x2 For x* to be a stationary point, vf(x*): Setting 2x 0: 8+2x,=0 > x,*=-4 Setting 0x, 0: 12-4x2=0 > x2*=3 : x= (-4,3) is the only stationary point Credning if x is a local minimiser: It can be seen the 42 f(x*) has cigarvalues of "Because there is one possitive eigenvalue and one negative eigenvalue, moving in any direction from xx will result in an increase or decrease. Therefore X* is a saddlepoint.



$$\nabla R(x) = \begin{bmatrix} -x_1 + 2x_2 \\ -x_1 + 2x_2 \end{bmatrix} \times \begin{bmatrix} -2 + 2 \\ 0 \end{bmatrix} = \begin{bmatrix} 0 \\ 0 \end{bmatrix}$$

= Z370 :. ozf(x) is postuc definite

·· Because $\nabla f(x) = 0$ and $\nabla^2 f(x)$ is positive definite, by $505C \times is a strict local minimizer$

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