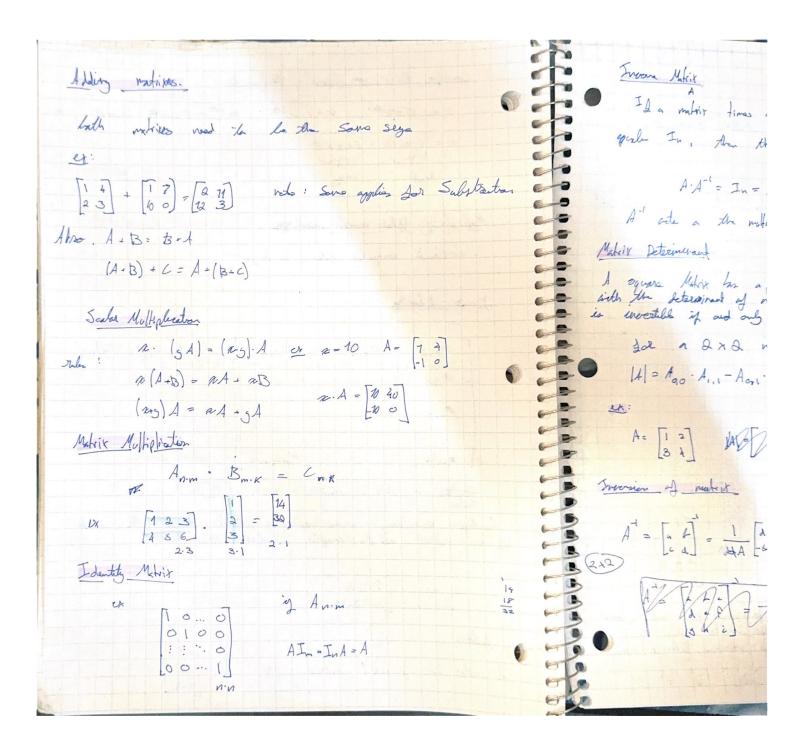
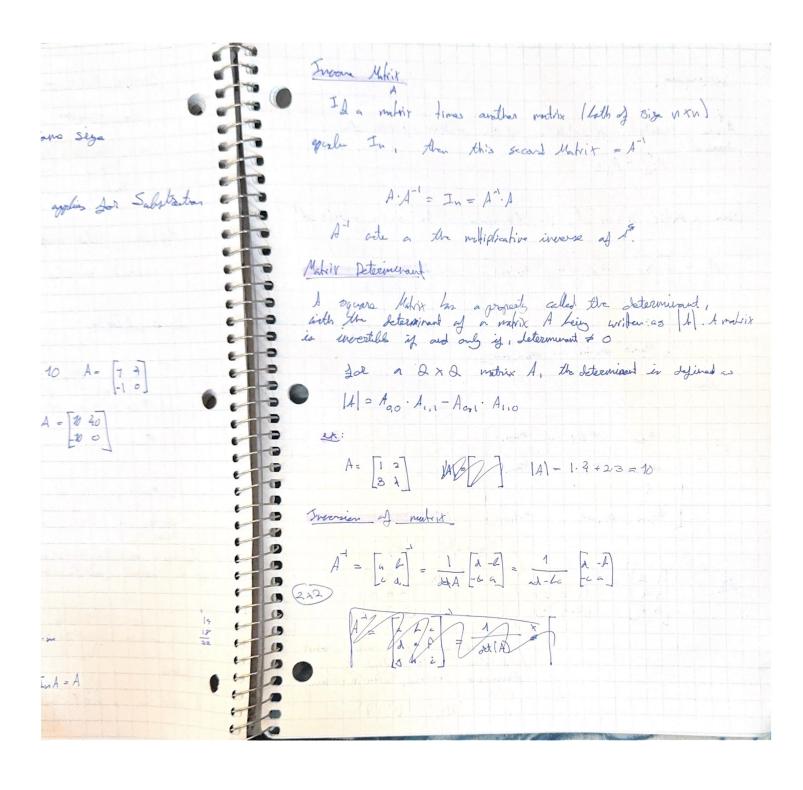
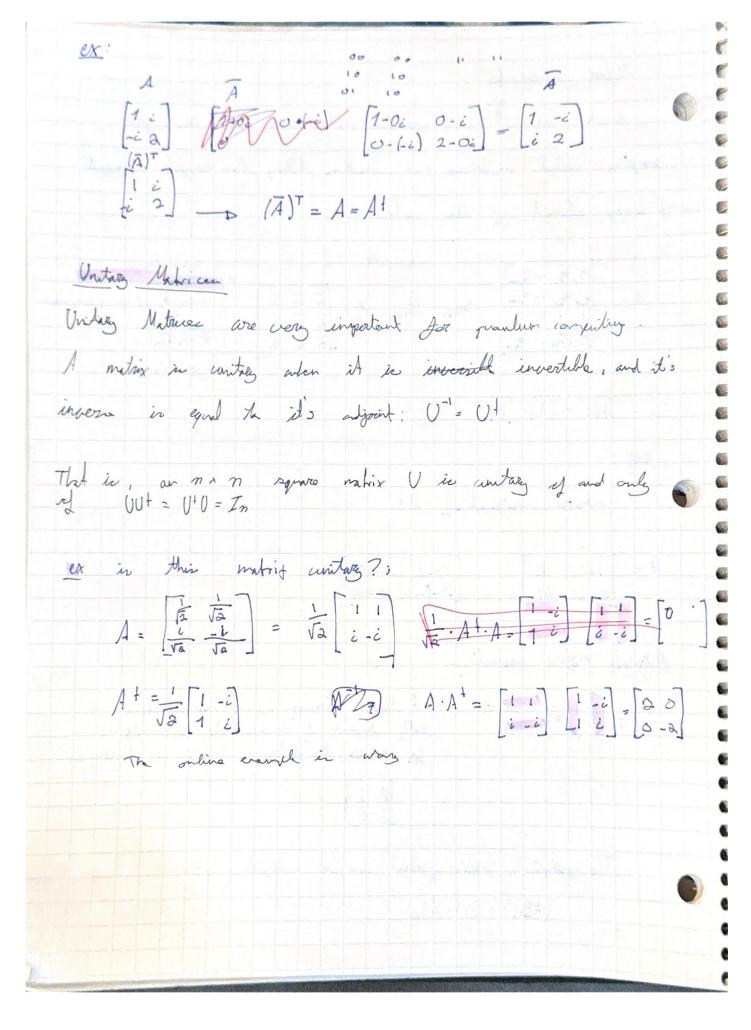
Relor - Complex Reclayable RE YEOS @ = Crsin @ Multiplying Palae complex numbers. as Check computer notes, too dayy > Lines of lycha Egentar of a Making ey. The polal and ber represent the same 1 n-1 m-1 left fast of the egention as Sotar = 1x1 mitrin ex [3]=3 ,0 Quadrum computing was complet-valued institute: the eliment I and itscar of wayword helih O, we can the land equation by the Vedon ton ()





A in essentials a reflection of the motrix access the diagonal: Bien a movis nxm. A, it bunger in the mxn netrit & A = 10,0 20,1 ... No, m-1 Kn210 An-111 ... Kn-1, m-1 Hen Rgo K110 ... 12n-110 Ko, m-1 2, m-1 But, m-1 is equal to the product as burgosed matrices, Taken in reverse order (AB) = BT.AT

Matrix conjugates devoted as A, this operation makes severe of only for complex - collad matrices it insolve taking the complex conjugat of every closest of the vetrix. terindes Carjust of a complex. ス=q+li= a =a-bi AB = [A). (B) retem conjugat of A: $A = \begin{bmatrix} 1+5i & 2 \\ 3-6i & 4i \end{bmatrix} \begin{bmatrix} 1-5i & 2-0i \\ 3-(-6i) & 0-4i \end{bmatrix}$. Adjoint Malix operation -A Marix known as a hormitian or $A^{\dagger} = \overline{(A^{\mathsf{T}})} = \overline{(A)}^{\mathsf{T}}$ 7 self-adjoint of it equals its own adjoint for example, the following make is Hermitian -4 1 1 -0 -The adjoint matrix goodent can be calculated as _0 (AB) = Bt. At --1



Inver Predut Given a creators V and W of the same size, their ince gradual (V, W) is defined as a product of maprices VI and W (V.W)=V+.W by an n * 1 webs rosells in a 1 x 1 salar. An immediate application If got the inner product in computing the The norm of wester V in delived as NUN=VKV, UT A veiler is called normalized if it's norm == 1 (V, W) = ? = V+·W VT = = [-6 92] = VT = [-6 -92] = VT $V^{\dagger} \cdot W = \begin{bmatrix} -6 & -9i \end{bmatrix} \cdot \begin{bmatrix} 3 \\ -8 \end{bmatrix} = \begin{bmatrix} -18 + 73i \end{bmatrix}$ 9 1 es2: Peturn the normalized Vedor V, defined as V where V= [-6] | | | | | | | = ? -3 || V || = \(\tau \, V \) = \(\tau^{\frac{1}{2}} \cdot \text{V} \\ \tau \\ \text{V} \\ = \(\text{V} \\ \text{V} \\ \text{V} \\ = \(\text{V} \\ \text{V} \\ \text{V} \\ = \(\text{V} \\ \te -9 V = -5/0 8/102 0

Octor product The onte predent to of a victors V on W wa defined a V.W. that is the auter product of an n + 1 vestal vetor in a n x m metrix if We dente the oater product of V and W as X's Xiij = Vi W; ex Lind outer product of VW+ $V = \begin{bmatrix} -3i \\ 4 \end{bmatrix} \qquad W = \begin{bmatrix} 9i \\ 2i \end{bmatrix}$ $VW^{\dagger} = \begin{bmatrix} -3i \\ 9 \end{bmatrix} \cdot \begin{bmatrix} -9i & 2 \end{bmatrix} =$ -27 -6 -81 18_ Terror broduct so ex return the server product of these 2 materies $A = \begin{bmatrix} 1 & 2 \\ 3 & 4 \end{bmatrix} \quad B = \begin{bmatrix} 5 & 6 \\ 7 & 8 \end{bmatrix} \quad A \quad \otimes \quad B = \begin{bmatrix} 1 \cdot B & 2 \cdot B \\ 3 \cdot B & 2 \cdot B \end{bmatrix}$ 2.5 2.6 56602 1.7 1.8 2.7 2.8 7 8 14 16 3.5 3.6 7.5 4.6 15 18 20 24 21 24 28 32 3.7 3.8 2.7 2.8