Eigenvalues For Lineal Operators
· Reminder to fill out EVALS
· We are currently at . completion :
· They are due Soo N (Tuesday 8/27)!

Now to answer guestion - how to compute eigenvalues/vectors for linear transformations? be lineal transformation. B a basis for V. Thrm: T:V-2V Then vis an eigenvoor (with eigenvalue 2) for T if and only it [v] is an eigenvector (with eigenvalue 1) for Azz ex) Find eigenvalues) redus fur TiReCx7 -> ReCx7 by $T(u_0+u_1x+U_1x^2)$ = $(Sa_0+Za_1-Ya_1)+(Ga_0+Su_1-Su_1)x+(Va_0+Ya_1)x$

By thim: Form the metrix
$$A_{T,B}$$
 where $B^2(1\times \times^2)$

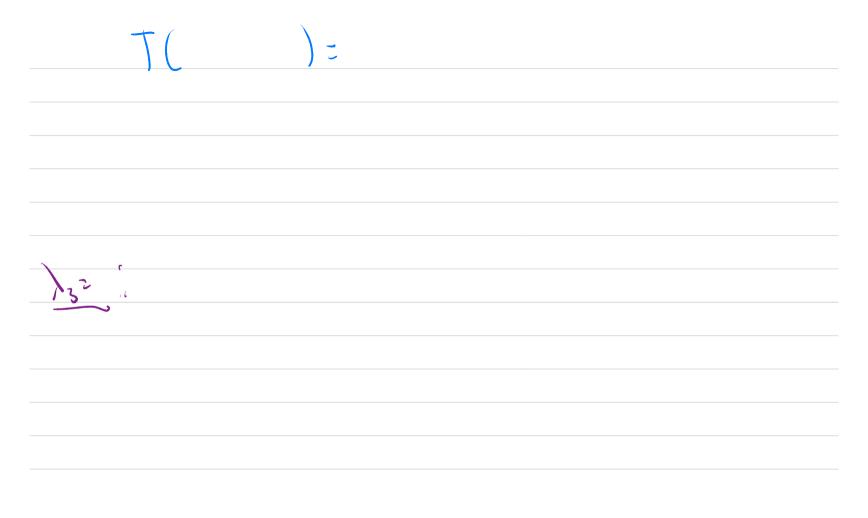
$$=> A_{T,B} =$$

$$0= det(A-\lambda I)_2$$



=> Thrm tells us Thut	is eigenvected
ful T with eigenvalue)=	V
(hul). T(
\mathcal{W}_{+}	

7= -	
	•
Thim tells us their	
Thim tells 35 man	
	is eigenvector of T
	V



Fact: Eigenvectors coming from distinct eigenvalues are LI)

Thus in this case
$$B'=(W_1, W_2, W_3)$$
 are a basis for Proxition (since They are LI). The matrix of T art this basis is

$A_{T,B'}$	
Q: Is T an isomorphism?	of Ans
> this is the	of Ans

ex2) TiRe(x) -> Re(x) with "stundard" mustrix => 2nd column talls us SO _ is eigenvected with eigenvalue _ Long way to find any other eigenvalues





Only how 2 eigenvectors for T · we cannot diagnolite this meetrix ATIB 2 for facts A non matrix

() fr(A) = 2) det(A) =

ex)		60				
	0 12	6 0 0 0 12 0) 3 -36				
Mhut	an the	ejurn valva	/Vectors	A?)	
101001		edin or or	7 6 60 10 5			