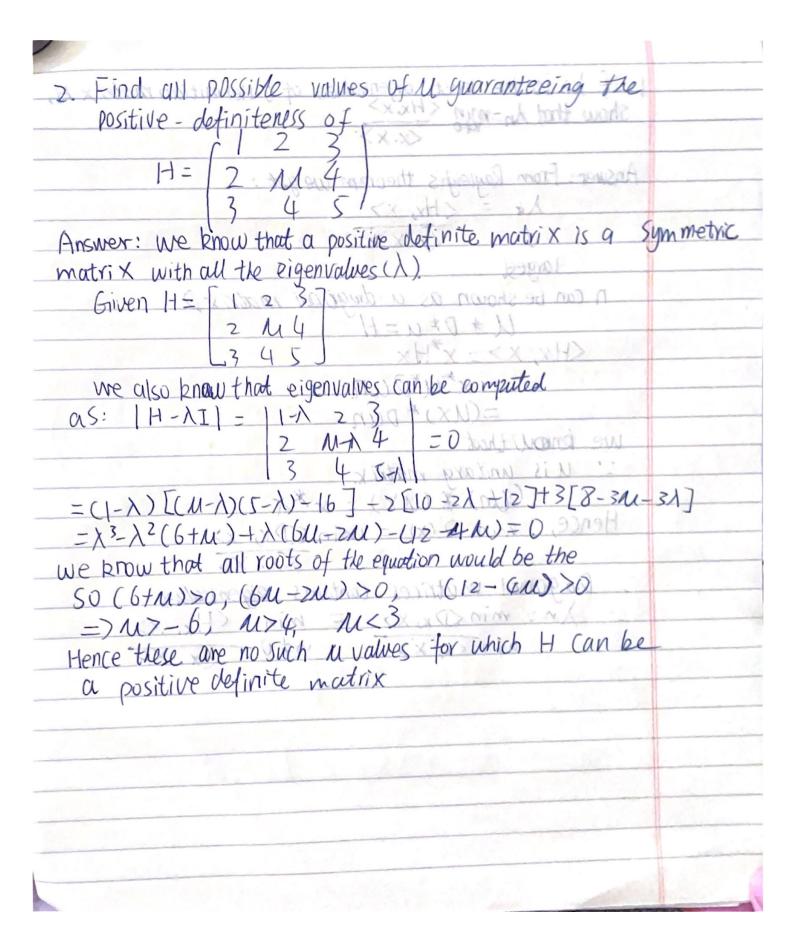
	I. If In is the least eigenvalues of a Hermitian matrix H,
1,235	I. If λ_n is the least eigenvalues of a Hermitian matrix H , show that $\lambda_n = \min_{x \neq 0} \frac{\langle Hx, x \rangle}{\langle x, x \rangle}$
	Answer: From Rayleigh's theorem we get:
JAMEN AND	X
	n can be shown as a diagonal matrix D
	$U * D * u = H$ $\langle Hx, x \rangle = x^* H \times$
	$= (U \times)^* D u n = A - 1 - 1 A - H = 20$
	we know that
[18	: U is unitary matrix. Un) * (Ux) = x*x
	Hence, $\min D(x) = \min CDx, x>$
	Diagonal matrices Contains eigenvalues i) n = min < Dx, x> = min < Hx, x>
	hthe hat out (xx, x > 1) n x + 0 m cx, x > 2 m cx
	S Mar Charles Tolkins
	Heracia IX - B B B B B



3,	Show that x =max x , denoted as x x, and x = \(\xi X),
	denoted as Ix1, are both norms. what are their associated
25	matrix norms? du la Delante de la College
Ans	Ever: Given x x = max xk
N.	and $ X _1 = \mathbb{R}[X_K]$
	To show that IXI & f IXII are norms, we need to
	show that it satisfies norm properties.
	for x = max xx x
	1) & x ==0 iff x=0, as max xx =0
	if *k=0 VK=0
	& IX \$≥ 0 as max XK >0 as absolute function is
	always true.
	@ To show that 12×12= [al. xlo
	12. VI20 - max 12 XXI
	d. x1 x = max d xk = max d . (xk)
	= d . max d . (xk)
& Jary	= X Max Xx d Xx email
	April Association mates XX post XX
	$= \Delta \cdot \times \times = \times = \times \times \times = \times \times \times \times = \times \times $
	D To classification of (V) as the last
	1x+41 = max 1xx+4x
	$ X+A _{\alpha} = X+A _{\alpha}$
	TXK T (9K)
	< Max XK T K YK
	3 To show that, $ x+y \Rightarrow \leq (x x+y x+y x+y x+y x+y x+y x+y x+y x+y x+$
	Hence IXI& is a norm

