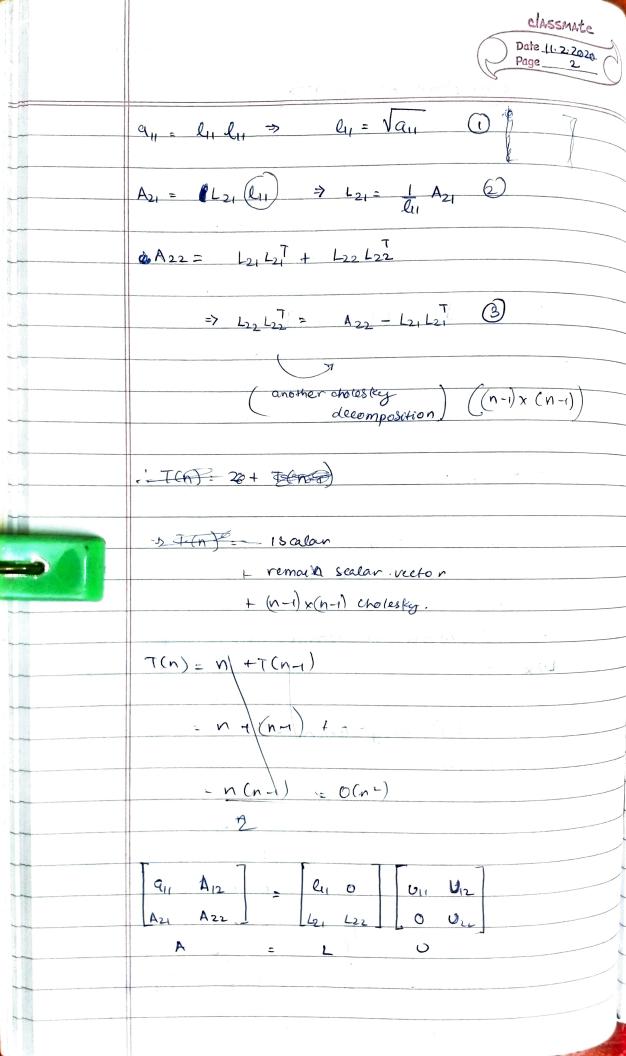
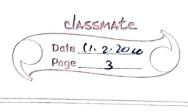


FACTORIZATION OF MATRICES

	Ax = b
UXU	Ax = b
	n = A b x not altractive (more complex)
	A[x1-xn] - [b1bn]
	if we have structure for A matrix
	it could be done efficiently.
	IPD Tr.
	PD matrix, Cholesky LU.
	The market of the second of th
	An = b
Antiliana para	J O bactorization (elecomposition, Costly)
America (and a control of the contro	LUX = 5 SVD > childstry
	Lw = 6 (20) easy solution A.
	$U_{\mathcal{K}} = \omega$ (25)
	of this step reused extensively
	then ok.
	ואו ואו
	A = 911 A21 L11 0 Ly L21
	A21 A22 L21 L22 0 L27
	/ hyn (
	(n-1)x(n-1)



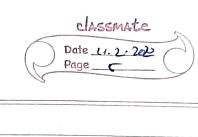


an = lu.vu

assume lu=10 => ay= @vy 2

 $A_{L_{21}} = \frac{1}{l_{11}} A_{21} = \frac{2}{3}$

$$\begin{array}{c} cl_{12}c_{13}c_{14}c_{14}c_{15}c_{1$$



$$LU = \begin{bmatrix} 6 & 3 & 1 \\ 2 & 4 & 3 \\ 9 & 5 & 2 \end{bmatrix}$$
Solve: $\begin{bmatrix} 6 & 3 & 1 \\ \end{bmatrix}$

Lw = b

Ux = W

18

ι7

$$n = \begin{bmatrix} 2 \\ 1 \\ 3 \end{bmatrix}$$
.

preon. $\frac{1}{2}$ ac. $\frac{1}{2}$ om $\frac{1}{2}$ vote

$$AB = I$$

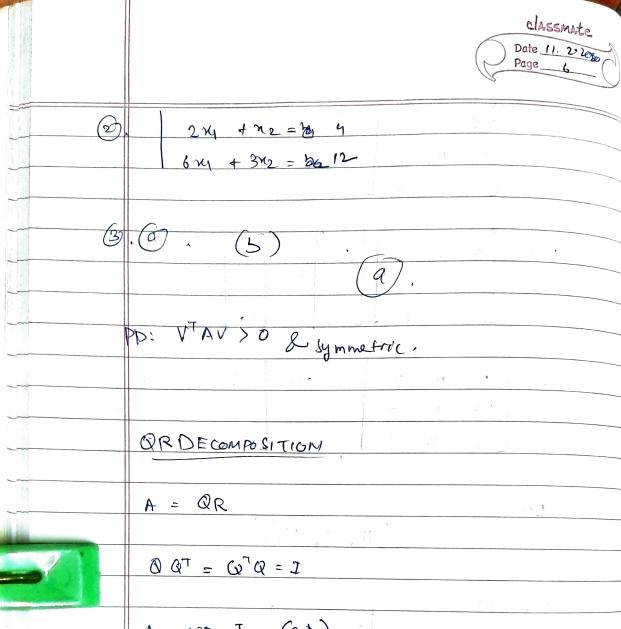
$$Abc = ec$$

$$Cab = ab$$

$$Ra = 0b$$

$$Ra = 0b$$

-a b



A = UD VT (SUD) Ax=b

nomanical State ety. QRx=b

(costly)

Rn = QTb.

classmate QQT = I (given) 91917=1 910=0 0202=1 a, = 9, 5, 80A2 = 91 R12 + Q2 R22 QR us 10 possible where Rislower! [Q_] [Q_] [O] Many possible factorreations. n 9,9,7 =1 LEAST SQUARE PROBLEM mon 1/An-b/ min (Axlb) (Ax-b) min (rTATAX+ 676-22TAT6) 2 ATAx - 2ATb = 0 ATAx = ATb.