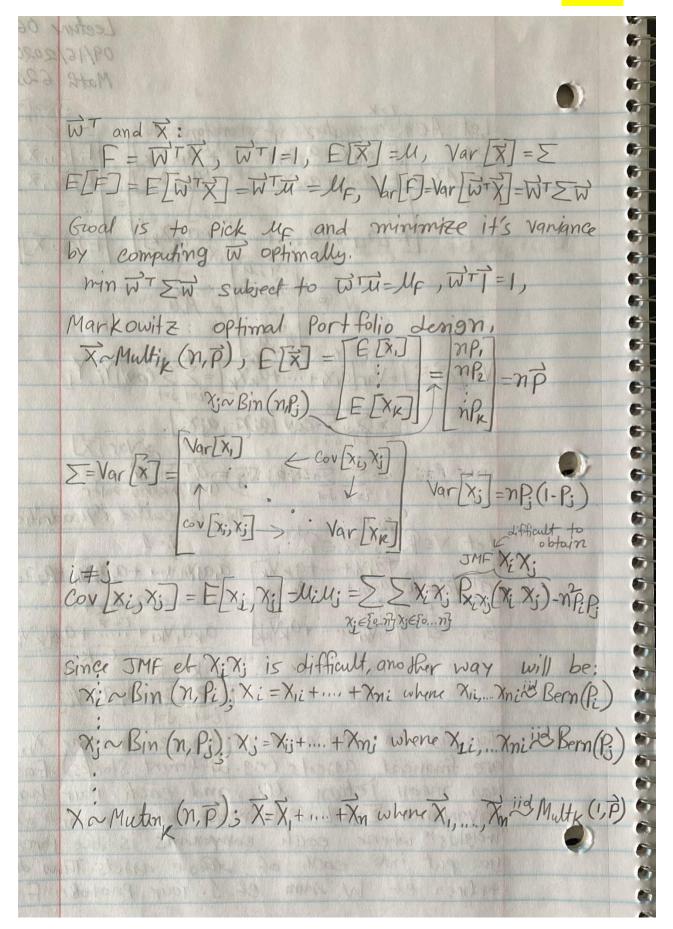
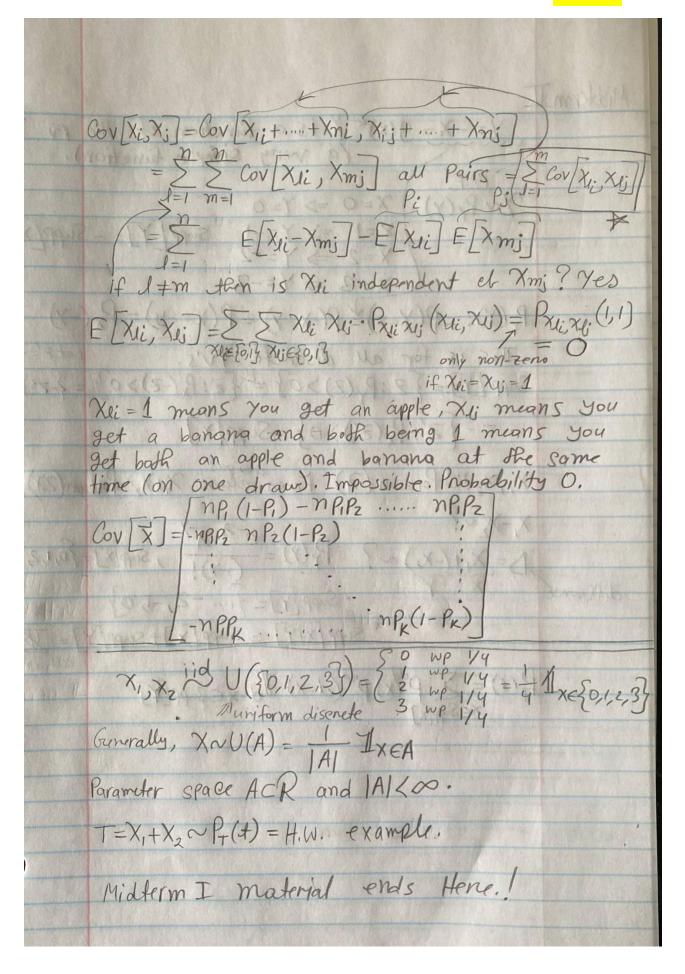
Lecture 06 09/16/2020 Math 621 ai > Tow i ch matrix A Let $A \in \mathbb{R}$ matrix et constant $E[\vec{a}_1, \vec{x}]$ $E[\vec{a}_1, \vec{x}] + a_{12} \times a_{$ $\begin{bmatrix}
E \left[a_{L1} X_{1} + a_{L2} X_{2} + \dots + a_{LK} X_{K} \right] \\
= \left[\overrightarrow{a_{1}}, \overrightarrow{\mu} \right] \\
= \left[\overrightarrow{a_{2}}, \overrightarrow{\mu} \right] = A \overrightarrow{\mu}$ $Var[\vec{a}^{\dagger}\vec{x}] = Var[\vec{a}_{1}\vec{x}_{1} + \dots + \vec{a}_{k}\vec{x}_{k}] = \sum_{i=1}^{K} Cov[Y_{i}, Y_{i}]$ = 5 5 cov [aixi, aixi] > Var[X] $= \sum_{i=1}^{K} \sum_{j=1}^{K} a_i a_j t_{ij} = \overline{a_i} \sum_{j=1}^{K} \overline{a_j}$ $= \sum_{i=1}^{K} \sum_{j=1}^{K} a_i a_j t_{ij} = \overline{a_i} \sum_{j=1}^{K} \overline{a_j}$ $= \sum_{i=1}^{K} \sum_{j=1}^{K} a_i a_j t_{ij} = \overline{a_i} \sum_{j=1}^{K} \overline{a_j}$ $= \sum_{i=1}^{K} \sum_{j=1}^{K} a_i a_j t_{ij} = \overline{a_i} \sum_{j=1}^{K} \overline{a_j}$ $= \sum_{i=1}^{K} \sum_{j=1}^{K} a_i a_j t_{ij} = \overline{a_i} \sum_{j=1}^{K} \overline{a_j}$ $= \sum_{i=1}^{K} \sum_{j=1}^{K} a_i a_j t_{ij} = \overline{a_i} \sum_{j=1}^{K} \overline{a_j}$ $= \sum_{i=1}^{K} \sum_{j=1}^{K} a_i a_j t_{ij} = \overline{a_i} \sum_{j=1}^{K} \overline{a_j}$ Let $V \in \mathbb{R}^{k \times k}$ $\vec{a} \in \mathbb{R}^{k+1}$ $\vec{a} = 1$ $\vec{a} \cdot \vec{a} \cdot \vec{a} \cdot \vec{a} \cdot \vec{b} \cdot \vec{a} \cdot \vec{b} \cdot \vec$ [a,....ak] [a,Vk,+.....+akVkk] aka,Vk+ 1....+akakVkk Tay volve & Rottle of the till K K S ajajvij This is an application in finance. Imagine X1. XK are financial assests (e.g. different Stocks). Each has mean tetum lli, and each Pair have covariance Eis. Let W-rector be a vector et 'weights" where each components is the percentage you put into each of these assets. Thus the entires et W sum et 1. Your Protolio F is





MidtermI Y=-X=g(x) Y is a function et the rv (a very simple function). $\begin{array}{c} PME \\ Y \sim P_{Y}(Y) \\ X=0 \Rightarrow Y=0 \\ X=1 \Rightarrow Y=-1 \\ X=2 \Rightarrow Y=-2 \\ X=3 \Rightarrow Y=-3 \\ \hline \\ X=3 \Rightarrow Y=-3 \\ \hline \\ O(Y=-Y)=P_{X}(-Y) \\ \end{array}$ $P_{Y}(Y) := P(Y=Y)^{\frac{1}{2}} P(-X=Y) = P(X=-Y) = P_{X}(-Y)$ This is for all disente (v's. Let z'=- Z Supp [Y]:= { Z: Py(Z) > 0} = { Z: Px(-Z) > 0} = {-Z:Px(Z')>0 =-{Z': Px(Z')>0} = Supp[x] X, X, Hd Poisson (A) From Class X,+X,~ Poisson (27) $X_1-X_2\sim$? $X_1-X_2\sim$? $X_1-X_2\sim$? $X_1+(-X_2)\sim$? $X_1+($ difference P_(+) = E pold (d-x) Id-x \in Supp[Y]
x \in Supp[X] THE KIND OF THE STATE OF KINDS