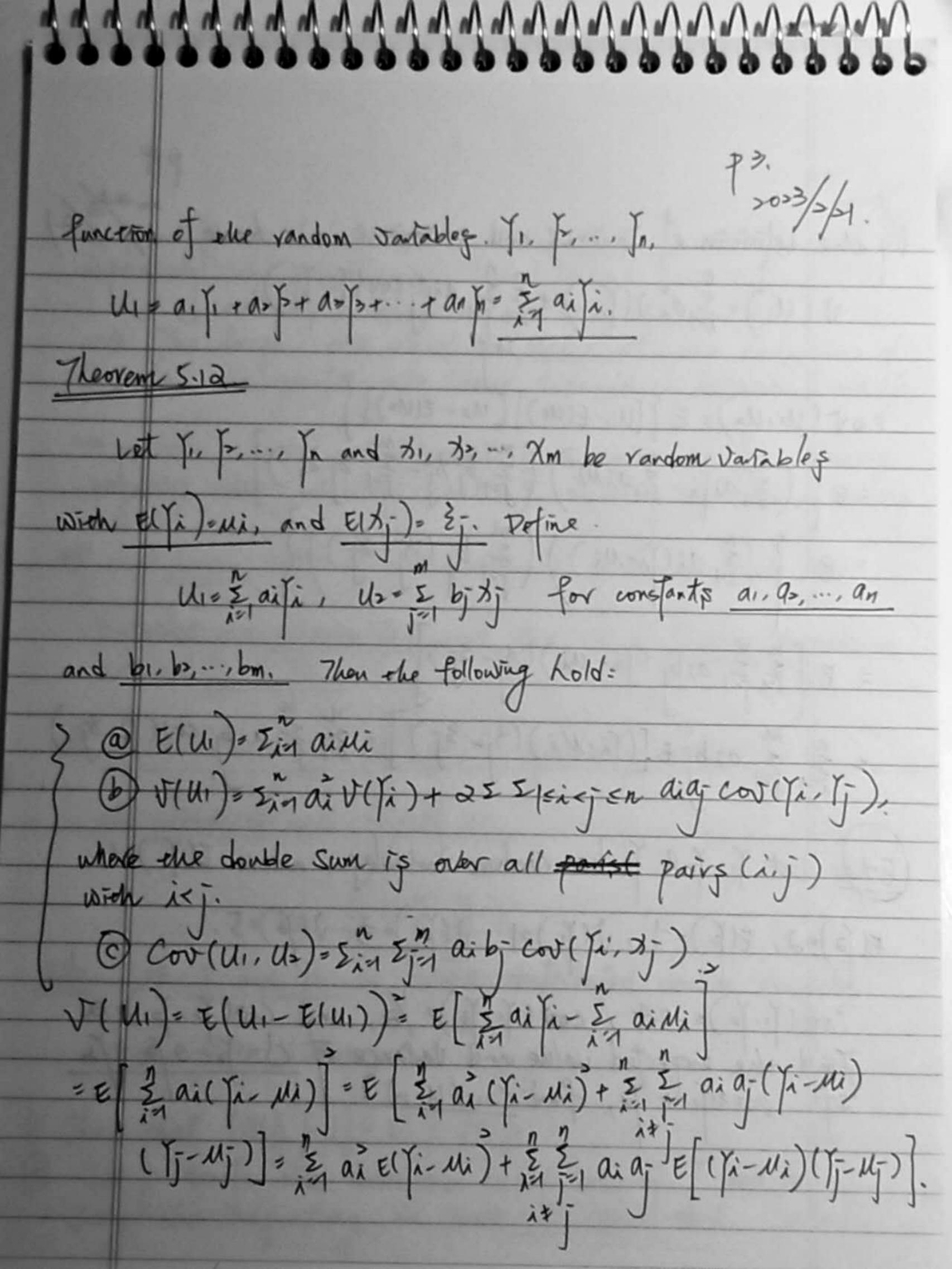
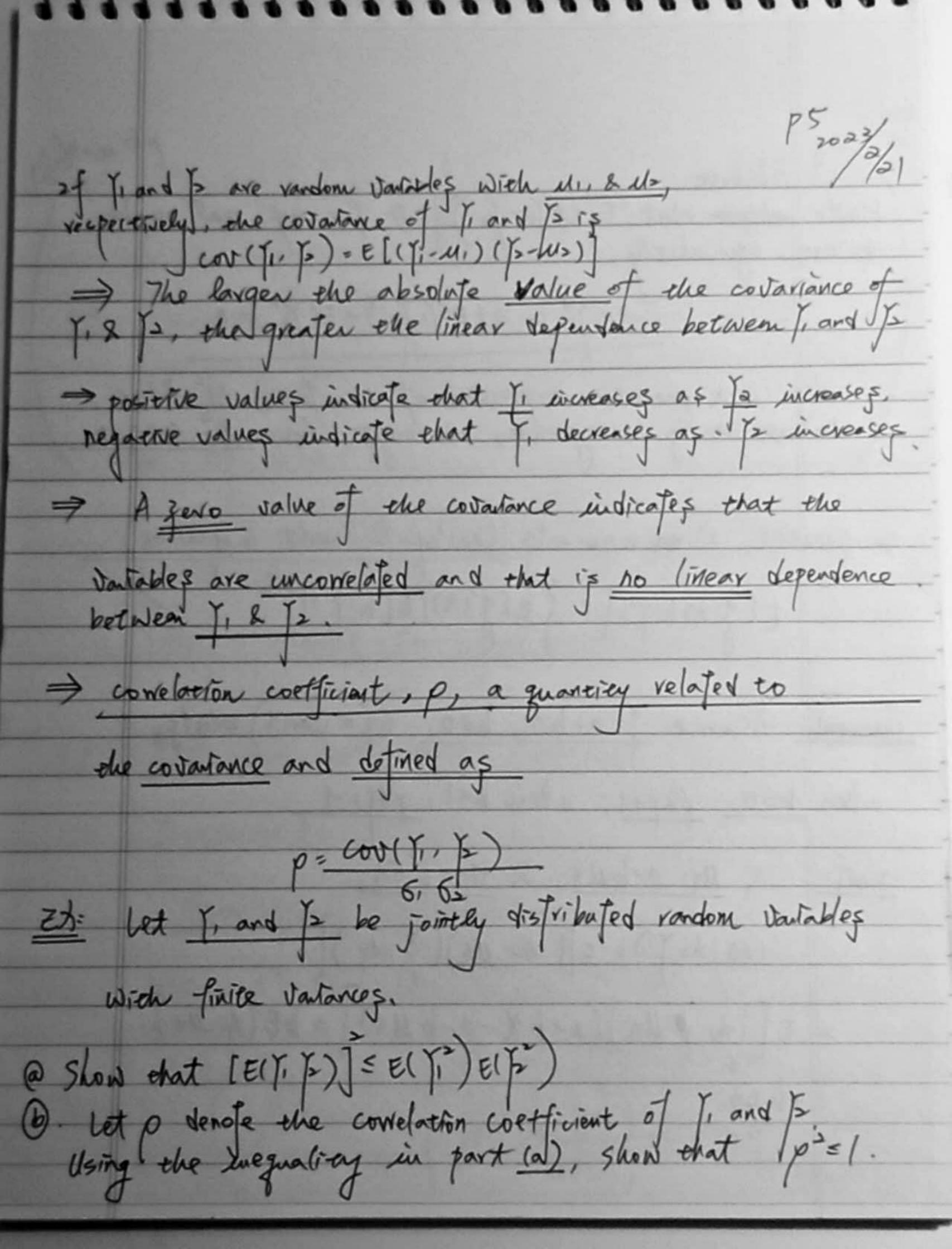
Advanced Econometrics (I). Finance Management (F2&F3) P1. 2023/24 De statistical inference → we assumed that the observable random variables II, I, In were independent and identially distributed. implication of this assumption = she expected value of Ti. the value of any other tartables. > this assumption is unvealistic in many inferential problems. De the mean stopping distance for a particular expect automobile will depend on the speed that the automobile is travelling. De elle mean potencin of an antibiotic depends on the amount of time that the antibiotic has been stored. => We undutate a study of inferential procedures that can be used when a random variable I, called the dependent variable, has a mean elect is a function of one or more monrandom variables \$1,72,...8K,



By the definition of Janance and covariance, we have  $V(u_i) = \sum_{j=1}^{n} a_i V(j_i) + \sum_{j=1}^{n} \sum_{j=1}^{n} a_i a_j cov(j_i, j_j).$ cov (u, u) = E [[u1-E(u1)][u2-E(u2)]] = = ( = ai/i - = ai/li) ( = bj/j - = bj/j ) = E ( ( ai ( Vi-Mi) ) ( = b - ( 5-3-)) ( = 医紫黑, aibj(下山)(对一致) = n m = aibj E[(Yi-Mi)(xj-3-)] = z = aibj cov(yi,xj) Est Let I., Is & Is be random vantables, where E(II)=1, E(3)-2, E(3)=1, V(7)=1, V(2)=3, V(3)=5, Cov (\(\frac{1}{1},\frac{1}{2}\))=-0.4, cov (\(\frac{1}{1},\frac{1}{2}\))=\(\lambda\), and cov (\(\frac{1}{2},\frac{1}{2}\))=\(\lambda\).

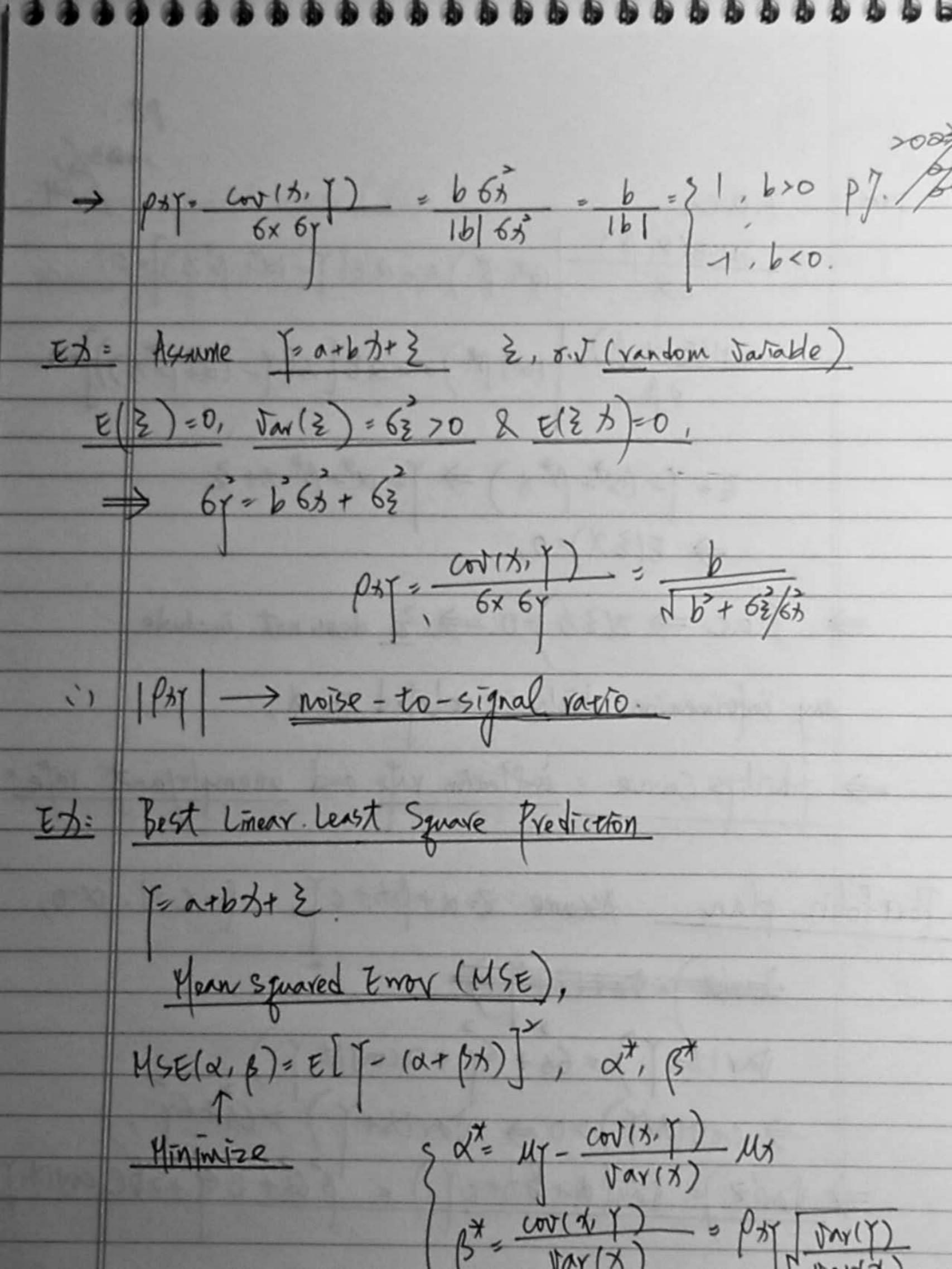
Find the expected value and variance of  $(1=\frac{1}{1}-\frac{1}{2}\))=\(\lambda\).

If \(\mathbb{M}=2\)\(\frac{1}{1}\)\(\frac{1}{2}\)\(\$ 



Hint: observe that E[(t)-/2)]>0 for any real number |
t or , equivalently, + E(1/2) - Qt E(1/2) + E(1/2) >>0 This is a quaratic expression of the ferm At+B++c; because it is nonnegative, we must have B-4AC=0 practice, (a) a vegresonts (Cauchy-Schwartz inequality)

E[q(x)h(y)] = {E[q'(x)]E[h'(y)]/2. Theorem Assume Frat by, bto, 6x = Janx) exists, aben 6>0, PAT=1; when b<1, PAT=1 Noof: 1; UY= 0+6Ux, & 6x=665, (N/4, )= E[13-UA)( -U) = [E[14-PUA)(a+bx-a-bUA) = bE(x-UB) 1663



(xt, pt) = -2 E[T-(xt+ Bt) =0. DMSE(Q, B) (X, BX)=-2E[x(Y-(X+BXX))=0. Z= Y-(x+β\*x) → Y=x+β\*x+2. → E(₹x)=0, F.o.c => Z(Zx)=0. => } does not include any information which is related to of, > phillips Curve : inflation rate and unemployment rate. Portfolio plan Assume Z=x+Bb+c), B=C=1, X=0, Var ( 15+ 1 ) = 65+ 64 + 2 (00) (15, 1) > coulty)>0 > var(x+1)>6x+67 DM(2)= Var(d+BH+CY)= B6x+C67+2BCcov(N,Y)