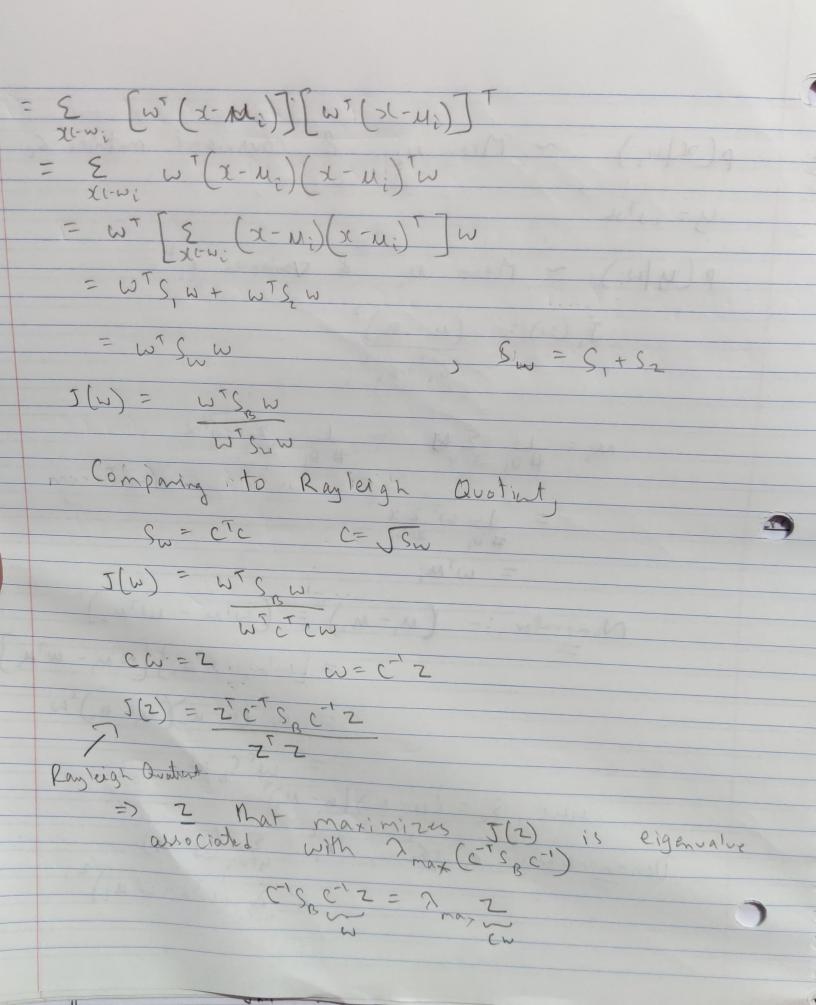
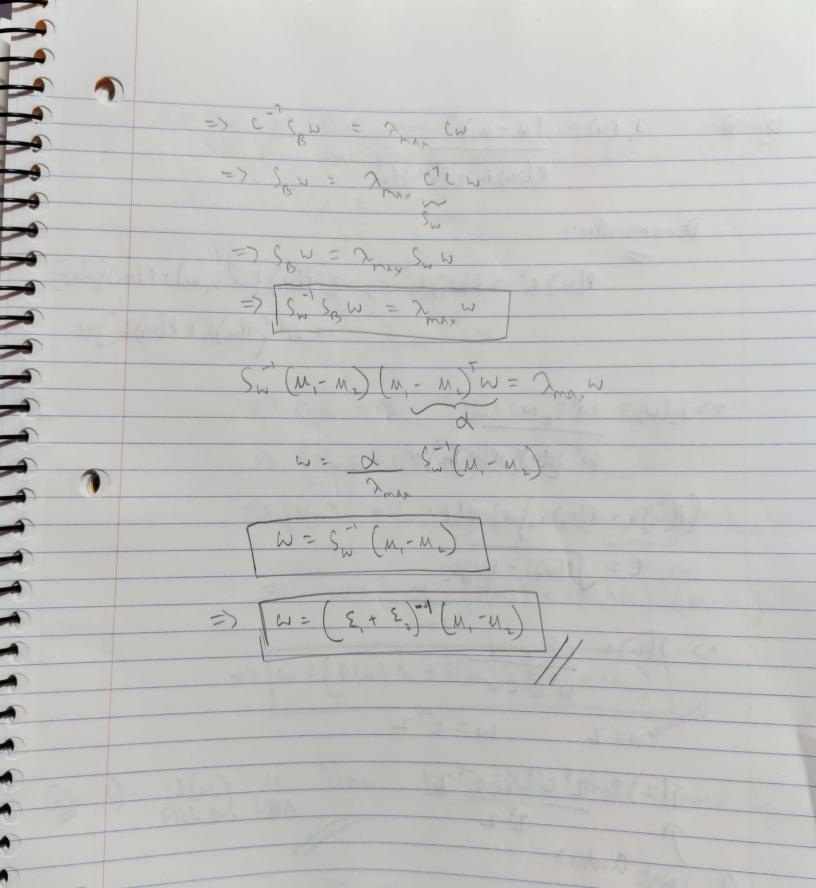
HW5. = 4 Mardin Prajapati (2678294168) E[x] = 0 $R = E[xx^T]$ $\hat{a} = \sum_{i=1}^{n} a_i e_i = a^T e$ $(x-\hat{x})^{T}(x-\hat{x})$ (x - a e) (x - a e) six - state - etase + etaate

p(x/w;) ~ Mem u & covariane motives of y= wTsc Mean 4. & Namances 62 P(y|W;) ~ J, (w) = (M-M) WTM; Nonerator: - (M-M2) = (WTM, - WTM2)2 [wm, - wm] [wm - wm = w (u,- u) w,- u) w where, Sg = (w= M) (n-M) Sg w Denominator: 6, +6, 6; = E (y-ui) = 2 (w/x - w/u;)2





Q2. b) J, (w) = (M, - M2) P(W,) 6, + P(W2) 62 -: retarimons P(w,) 6,2 + P(w) 62 , = P(w,) {ws, w] + P(w2) {wsw} = w [P(w) S + P(w2) 5] w =) J_(w) = w S_ W W {P(W) S, +P(W2) 82) W [P(u) S, + P(u) S) = cTc =) C = \[\P(\w)\s, + \P(\u)\s_2 => J(w) = wrs, w CW=Z W=CZ J(2) = Z'C'SgC'2 Rayleigh Quotient.

That is associated with 2 (c-sec-): CTSCTZ = 2max 2 => cTS w = 2 cw =) Sw= 2 cTCW => Sw = > SP(w,) S, + P(w) S2 }w, => {P(w,)S,+P(w2)S2} - SBW = 2max w => (P(W,)S, +P(W)S2) (M,-M2)(M,-M2) = 2 mx co =) W= X {P[w,) s, + P[w_2) s_2} (u,-n_2) => [w=(P(w) &, + P(w) &2)-1 (M-M2) Q2. c) s(w) is "closer" to exiterion that is used by