Submission - Assignmen + Morta Guila - Mn 5585808 - mg 776 Erik Bone - Mn: 4505199 - 66301 Tillman Heigner - Mn: 4517815 - + 4273 Pen and Paper Tagh 1) Tormula: ŷ=wTX L(j,y) = (j,-y)2 3[(j,y) = 2(j-y) X $\hat{g} = \frac{1}{m} \stackrel{\text{on}}{\leq} 2 \left[\left(\frac{1}{2} \right)^{1}, \frac{1}{2} \right]$ v = Dv - & g wT= wT + v = wT + Bv - & g 1st iteration j = [1 0] · X = [2 -1] 2 L(y,y) = 2 [-1 -2] · X $= [-2 - 4] \cdot X = [0 - 10]$ $q = \frac{1}{7} \cdot (0 - 10) = -5$ v = [1 1]wT = [1 0] + 0.8 [0 0] - 0.2 · (-5) = [1 0] +1 $= [2 \ 1] = 3 \quad w = \begin{bmatrix} 2 \\ 1 \end{bmatrix}$

2 iteration 7 = [3 1] 2 L(j, y) = 2 · [0 0] · X = [0 0] 9 = 0 v = [0.8 0.8] VT = [2 1] + B (0.8 0.8] = [2.8 1.8] => w = [2.8] 3rd iteration $\hat{y} = [3.8 \ 2.6]$ 2 [(j,y)=2[0.8 1.6]. X 2 w = [1.6 3.2] - + :[0 8] $\hat{\mathbf{g}} = \frac{1}{2} \mathbf{g} = \mathbf{g}$ V = 0.8 [0.8 0.8] - 0.2 4 = [0.64 0.64] - 0.8 = [-0.16 -0.16] wT = [2.8 1.8] + [-0.16 -0.16] =[2.64 1.64] => $W = \begin{bmatrix} 2.64 \\ 1.64 \end{bmatrix}$

2) It is to show that s=g for the ddan objection, where $S \leftarrow p_1 S + (1-p_1) \hat{g}$, that with ASP_1 $S \leftarrow S$, with A are the time steps and \hat{g} is constant. Proble via induction: Bose cose - +=1: 51 = (1 - pn) g $S_1 = (1 - p_1) \hat{g} = \hat{g}$ Induction hypothesis (1#): For all I EN holds that \$ = My P1 4-1+ (1-p1) g = g Induction step: 5+1 = - Pn 5+ + (1-Pn) q 1-00-11 = Pa sen + (1 - pa) g . 1 1- pt 9.1