Question 1 Final attempt

$L = -\sum y_i \log(o_i)$ $\quad \frac{\partial L}{\partial v_i} = o_i - y_i$

$y_i \log(-$

$-y_i \log(o_i(1-o_i))$ $\quad o_i = \frac{e^{v_i}}{\sum e^{v_i}}$

$-y_i \log\left(\frac{e^{v_i}}{\sum e^{v_j}}\right)$

$\sum -y_i (\log(e^{v_i}) - \log(\sum e^{v_j}))$

$-y_i (\log(e^{v_i}) - \log(\sum e^{v_j}))$

$(-) y_i \frac{(\log(e^{v_i}))}{\log(\sum e^{v_j})}$ $(+) \frac{\log(\sum e^{v_j})}{\log(\sum e^{v_i})} y_i$

$-y_i o_i - y_i$