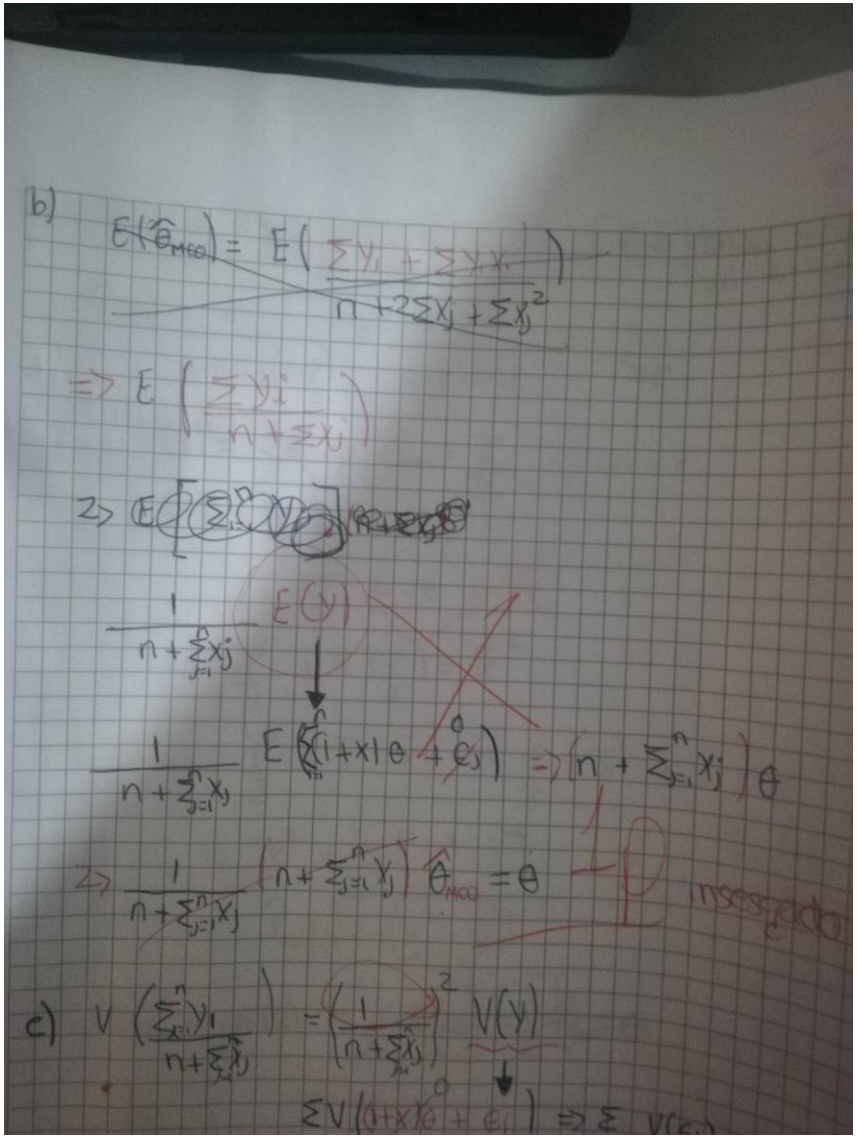
b)
$E(\hat{\theta}_{MCO}) = E\left(\frac{\sum y_i + \sum y_i x_i}{n + 2\sum x_j + \sum x_j^2}\right)$
$\Rightarrow E\left(\frac{\sum y_i}{n + \sum x_j}\right)$
$\Rightarrow E\left[\frac{1}{n + \sum_{j=1}^{n} x_j} E(y)\right]$
$\frac{1}{n + \sum_{j=1}^{n} x_j} E\left(\sum_{i=1}^{n} (1 + x_i\theta + \varepsilon_i)\right) \Rightarrow \left(n + \sum_{j=1}^{n} x_j\right)\theta$
$\Rightarrow \frac{1}{n + \sum_{j=1}^{n} x_j}\left(n + \sum_{j=1}^{n} x_j\right)\hat{\theta}_{MCO} = \theta$
1
0
insesgado
c) $V\left(\frac{\sum_{i=1}^{n} y_i}{n + \sum_{j=1}^{n} x_j}\right) = \left(\frac{1}{n + \sum_{j=1}^{n} x_j}\right)^2 V(y)$
$\Sigma V(0 + x_i\theta + \varepsilon_i) \Rightarrow \Sigma V(\varepsilon_i)$