QUESTION 2

$$\Sigma = \frac{1}{n} \bar{D}^T \bar{D}$$

$$\Sigma = \frac{1}{3} \begin{bmatrix} 4 & -2 & -2 \\ 17/3 & -7/3 & -10/3 \end{bmatrix} \begin{bmatrix} 4 & 17/3 \\ -2 & -7/3 \\ -2 & -10/3 \end{bmatrix}$$

$$\Sigma = \frac{1}{3} \begin{bmatrix} 24 & 34 \\ 34 & \frac{146}{3} \end{bmatrix}$$

$$\Sigma = \begin{bmatrix} 8 & \frac{34}{3} \\ \frac{34}{3} & \frac{146}{9} \end{bmatrix}$$