

E94084032 林耕羣 HW4.1

$$\begin{bmatrix} 4 & 3 & -5 & 2 \\ -2 & -4 & 5 & 5 \\ 8 & 8 & 0 & -3 \end{bmatrix} \xrightarrow{\substack{+1 \\ -2}} \begin{bmatrix} 4 & 3 & -5 & 2 \\ 0 & -2.5 & 2.5 & 6 \\ 0 & 2 & 10 & -7 \end{bmatrix} \xrightarrow{+4} \begin{bmatrix} 4 & 3 & -5 & 2 \\ 0 & -2.5 & 2.5 & 6 \\ 0 & 0 & 12 & -2.2 \end{bmatrix} \xrightarrow{\substack{\times \frac{5}{12} \\ \times \frac{25}{12}}} \begin{bmatrix} 4 & 3 & -5 & 2 \\ 0 & -2.5 & 2.5 & 6 \\ 0 & 0 & 12 & -2.2 \end{bmatrix}$$

$$= \begin{bmatrix} 4 & 3 & 0 & \frac{13}{12} \\ 0 & -2.5 & 0 & \frac{155}{24} \\ 0 & 0 & 12 & -2.2 \end{bmatrix} \xrightarrow{\times \frac{3}{2.5}} \begin{bmatrix} 4 & 3 & 0 & \frac{13}{12} \\ 0 & -2.5 & 0 & \frac{155}{24} \\ 0 & 0 & 12 & -2.2 \end{bmatrix}$$

$$= \begin{bmatrix} 4 & 0 & 0 & \frac{53}{6} \\ 0 & -2.5 & 0 & \frac{155}{24} \\ 0 & 0 & 12 & -2.2 \end{bmatrix}$$

$$= \begin{bmatrix} 1 & 0 & 0 & \frac{53}{24} \\ 0 & 1 & 0 & -\frac{155}{60} \\ 0 & 0 & 1 & -\frac{22}{120} \end{bmatrix}$$

$$= \begin{bmatrix} 1 & 0 & 0 & \frac{53}{24} \\ 0 & 1 & 0 & -\frac{31}{12} \\ 0 & 0 & 1 & -\frac{11}{60} \end{bmatrix}$$

$$\lambda_1 = \frac{53}{24}$$

$$\lambda_2 = -\frac{31}{12}$$

$$\lambda_3 = -\frac{11}{60}$$