

ERROR & RESIDUAL VECTORS...

$$= b - Ax$$

$$\begin{bmatrix} 1.2969 & 0.6848 \\ 0.2161 & 0.1441 \end{bmatrix}$$

$$x_1 = \begin{bmatrix} 1 \\ 1 \end{bmatrix}$$

$$x_2 = \begin{bmatrix} 0.9911 \\ 1.1760 \\ -0.4871 \end{bmatrix}$$

$$\rightarrow r = b - Ax$$

so,

$$r_i = b - Ax_i, \quad b = \begin{bmatrix} 2 \\ -2 \end{bmatrix}$$

$$= \begin{bmatrix} 2 \\ -2 \end{bmatrix} - \begin{bmatrix} \dots \end{bmatrix} \begin{bmatrix} x_{i1} \\ x_{i2} \end{bmatrix}$$

$$\begin{aligned} r_1 &= 2 - 1.2969 \cdot x_{11} - 0.6848 \cdot x_{12} \\ &= 2 - 1.2969 \cdot 1 - 0.6848 \cdot 1 \\ &= 2 - 0.648 \end{aligned}$$

$$\boxed{r_1 = 2.648}$$

$$\begin{aligned} r_2 &= -2 - (0.2161) \cdot (0.9911) \\ &\quad - (0.1441) \cdot (-0.4871) \end{aligned}$$

$$\boxed{r_2 \approx -2.144}$$