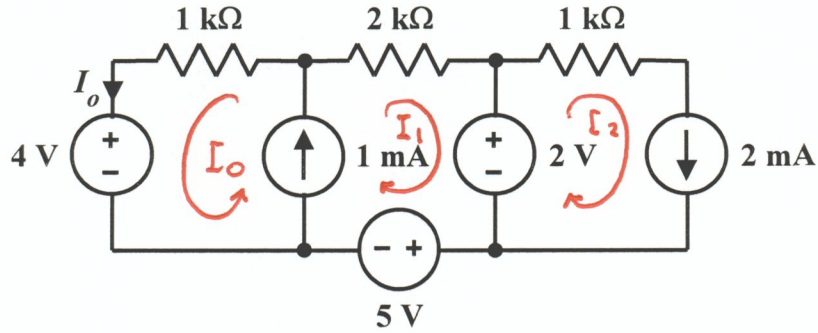


EE 2240
Problem #08

Use mesh analysis to find I_o .



$$I_o + I_1 = 1 \text{ mA} \quad (\text{constraint})$$

$$I_2 = 2 \text{ mA} \quad (\text{constraint})$$

$$-4 - 1000 I_o + 2000 I_1 + 2 + 5 = 0 \quad (\text{mesh } 0, 1)$$

In matrix form:

$$\begin{bmatrix} 1 & 1 & 0 \\ 0 & 0 & 1 \\ -1000 & 2000 & 0 \end{bmatrix} \begin{bmatrix} I_o \\ I_1 \\ I_2 \end{bmatrix} = \begin{bmatrix} 0.001 \\ 0.002 \\ -3 \end{bmatrix}$$

Solving yields:

$$I_o = \frac{5}{3} \text{ mA}$$