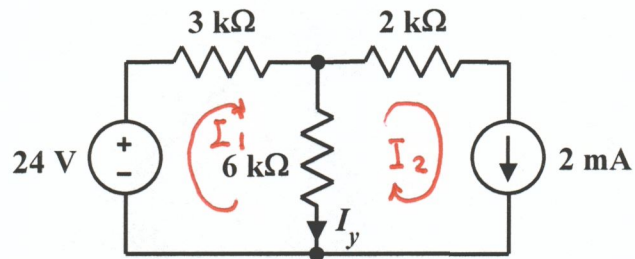


EE 2240
Problem #04



- a. How many equations are necessary to analyze this circuit by the mesh analysis method?

2

Use the method discussed in class to:

- b. Develop the mesh equations describing the circuit.

$$I_2 = 2 \text{ mA}$$

$$-24 + 3000 I_1 + 6000 (I_1 - I_2) = 0$$

- c. Write the mesh equations in the matrix form discussed in class.

$$\begin{bmatrix} 0 & 1 \\ 9000 & -6000 \end{bmatrix} \begin{bmatrix} I_1 \\ I_2 \end{bmatrix} = \begin{bmatrix} 0.002 \\ 24 \end{bmatrix}$$

- d. Solve the mesh equations.

$$I_1 = 4 \text{ mA}$$

$$I_2 = 2 \text{ mA}$$

- e. Use KCL to determine the value of I_y .

$$I_y = I_1 - I_2 = 2 \text{ mA}$$