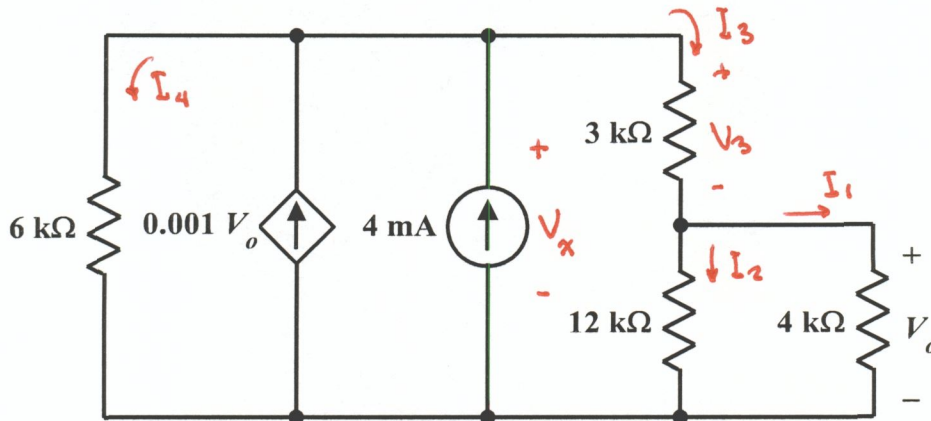


EE 2240
Problem #02

Determine the value of V_o .



$$I_1 = \frac{V_o}{4k\Omega}$$

$$I_2 = \frac{V_o}{12k\Omega}$$

$$I_3 = I_1 + I_2 = \frac{1}{3k\Omega} V_o$$

$$V_3 = (3k\Omega) I_3 = V_o$$

$$V_x = V_3 + V_o = 2V_o$$

$$I_4 = \frac{V_x}{6k\Omega} = \frac{1}{3k\Omega} V_o$$

$$I_4 - 0.001 V_o - 4mA + I_3 = 0 \quad (\text{KCL})$$

$$\frac{1}{3000} V_o - \frac{1}{1000} V_o - 4mA + \frac{1}{3000} V_o = 0$$

$$-\frac{1}{3000} V_o - 4mA = 0$$

$$\Rightarrow V_o = -12V$$