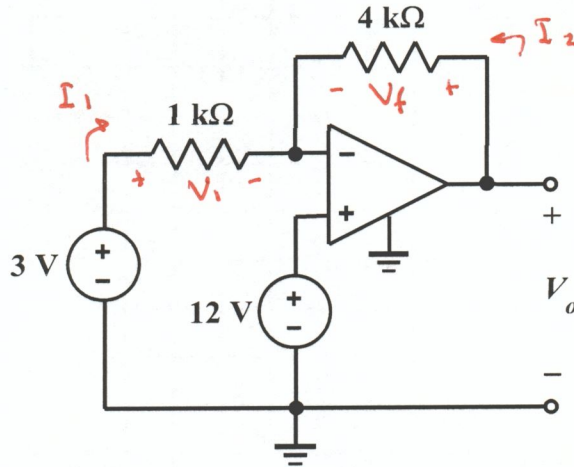


EE 2240
Problem #03

Find V_o in the network shown.



$$V_i = 3V - 12V = -9V$$

$$I_1 = \frac{V_i}{1k\Omega} = -\frac{9V}{1k\Omega} = -9mA$$

$$V_f = V_o - 12V$$

$$I_2 = \frac{V_f}{4k\Omega} = \frac{V_o}{4k\Omega} - \frac{12V}{4k\Omega} = \frac{V_o}{4k\Omega} - 3mA$$

$$I_1 + I_2 = 0 \Rightarrow \frac{V_o}{4k\Omega} - 3mA = -(-9mA)$$

$$\begin{aligned} V_o &= 4k\Omega (9mA + 3mA) \\ &= 48V \end{aligned}$$