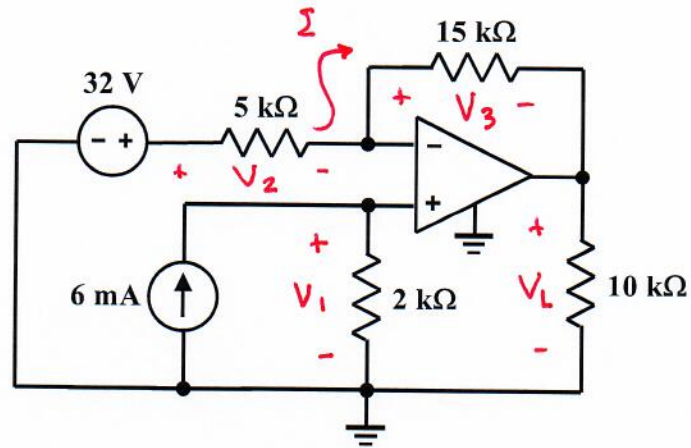


EE/EET 2240
Homework Problem 033



The OpAmp is ideal. Determine the amount of power absorbed by the 10 kΩ resistor.

$$V_1 = (6 \text{ mA})(2 \text{ k}\Omega) = 12 \text{ V}$$

$$V_2 = 32 \text{ V} - V_1 = 20 \text{ V}$$

$$I = \frac{V_2}{5 \text{ k}\Omega} = 4 \text{ mA}$$

$$V_3 = (15 \text{ k}\Omega) I = 60 \text{ V}$$

$$V_L = -V_3 + V_1 = -60 \text{ V} + 12 \text{ V} = -48 \text{ V}$$

$$P_L = \frac{V_L^2}{10 \text{ k}\Omega} = \frac{(-48 \text{ V})^2}{10 \text{ k}\Omega} = 230.4 \text{ mW}$$