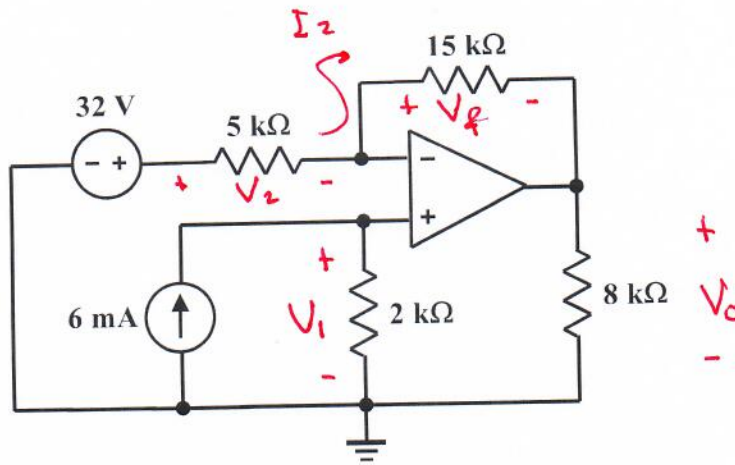


EE/EET 2240
Homework Problem #036



The OpAmp is ideal. Determine the amount of power absorbed by the 8 kΩ resistor.

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

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

$$I_2 = \frac{V_2}{5 \text{ k}\Omega} = 4 \text{ mA}$$

$$V_f = (15 \text{ k}\Omega) I_2 = 60 \text{ V}$$

$$V_o = -V_f + V_1 = -60 + 12 = -48 \text{ V}$$

$$P_{8 \text{ k}\Omega} = \frac{V_o^2}{8 \text{ k}\Omega} = \frac{(48)^2}{8000} = 288 \text{ mW}$$