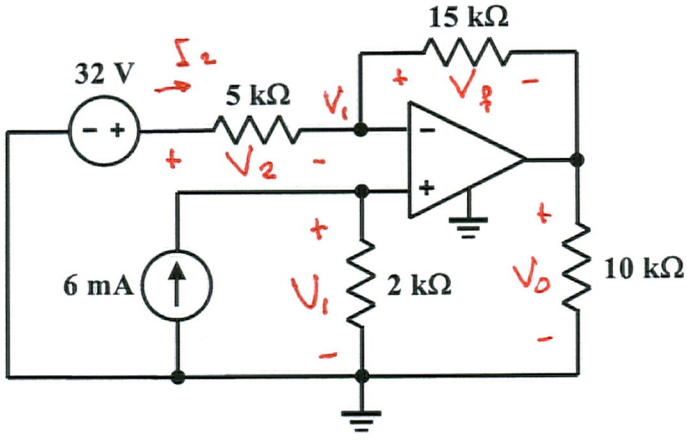
EE/EET 2240

Homework Problem #35



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

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

$V_2 = 32V - V_1 = 32V - 12V = 20\ V$

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

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

$V_o = -V_f + V_1 = -48V$

$P_{10k\Omega} = \frac{V_o^2}{10k\Omega} = \frac{(-48V)^2}{10k\Omega} = 230.4\ mW$