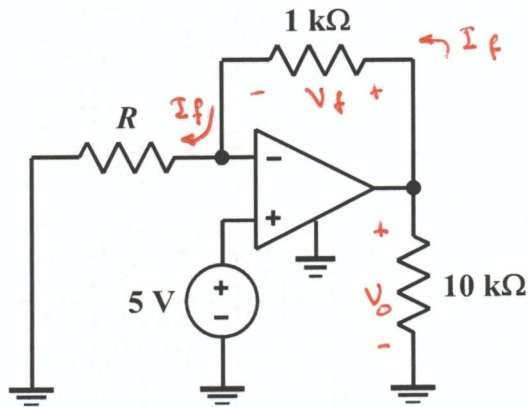# Problem #05

What value of R is required so that 10 mW is delivered to the 10 kΩ resistor?

$$\frac{V_o^2}{10k\Omega} = 10mW \quad \Rightarrow \quad V_o = 10V$$

$$V_f = V_o - 5V = 10V - 5V = 5V$$

$$I_f = \frac{V_f}{1k\Omega} = \frac{5V}{1k\Omega} = 5mA$$

$$RI_f = 5V \quad \Rightarrow \quad R = \frac{5V}{5mA} = 1k\Omega$$