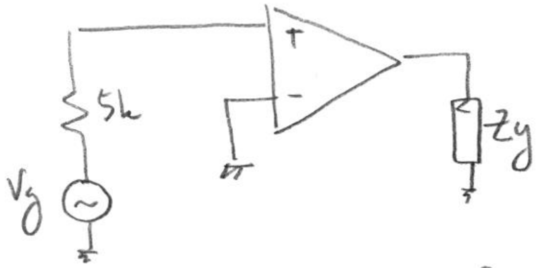
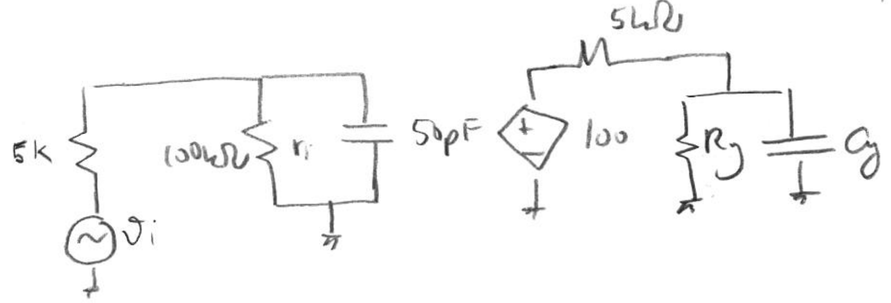
Solution:



$$70 = \frac{v_{out}}{v_i} = \frac{100k}{100k+5k} \times 100 \times \frac{R_y}{R_y+5k}$$

$$\cancel{1} + \frac{5k}{R_y} = 1.\cancel{36} \quad 0.36$$

$$R_y = 13.87\,k\Omega$$



$$\tau_1 = 50pF\,(100k \parallel 5k) \Rightarrow f_c = 668.45\,k\Omega$$

$$\tau_2 = C_y\,(13.87k \parallel 5k) \Rightarrow f_c' = 50kHz \qquad C_y \Rightarrow 866.11 \times 10^{-12} F$$

It is apparent that the output pole should be compensated. By using the formula:

$$L_S = \frac{R_A R_B^2 C_i}{2 r_i}$$ where

$R_A = 5k + 13.87k$ (series combination)

$R_B = 5k \parallel 13.87k$ (parallel combination)

$r_i = 13.87k$ (shunt resistor to C_y)

$C_i = 866.11 \times 10^{-12} F$ (C_y itself)

$$L_S = \frac{18.87k \cdot 13.51 \times 10^6 \cdot 866{,}11 \times 10^{-12}}{2 \cdot 13.87 \times 10^3} = \boxed{7.96\,mH}$$