ECE2101L
Electrical Circuit Analysis II

Assignment 1

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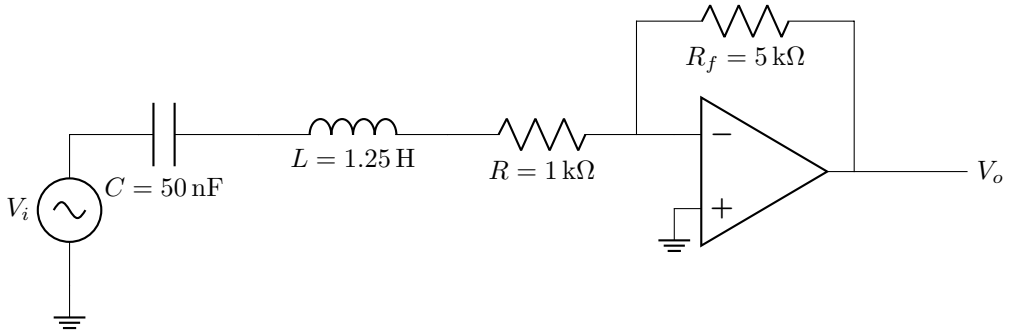

$$H(j\omega) = \frac{V_o}{V_i} = -\frac{Z_f}{Z_i} = \frac{-5000}{1000 + 1.25j\omega - \frac{1}{50\times10^{-6}\omega}j}$$

$$H(j\omega) = \frac{-5000}{1000 + (1.25\omega - \frac{20000}{\omega})j} \times \frac{1000 - (1.25\omega - \frac{20000}{\omega})j}{1000 - (1.25\omega - \frac{20000}{\omega})j}$$

$$H(j\omega) = \frac{-5000}{1000^2 + (1.25\omega - \frac{20000}{\omega})^2}\left(1000 - (1.25\omega - \frac{20000}{\omega})j\right)$$

$$H(j\omega) = \frac{-5000}{1000^2 + (1.25\omega - \frac{20000}{\omega})^2}\sqrt{1000^2 + (1.25\omega - \frac{20000}{\omega})^2}\underline{/tan^{-1}(\frac{20}{\omega} - 0.00125\omega)}$$

$$H(j\omega) = \frac{-5000}{\sqrt{1000^2 + (1.25\omega - \frac{20000}{\omega})^2}}\underline{/tan^{-1}(\frac{20}{\omega} - 0.00125\omega)}$$

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