

Homework # 5

Due date: Dec. 15 (Thursday)

[Textbook]

Exercise 12.2 (a)

Problem 12.6

Exercise 13.13

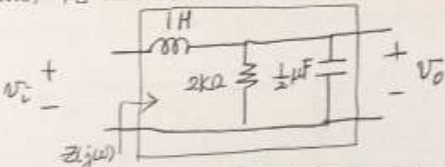
Problem 13.4 (a)~(c)

Exercise 15.12, 24 (a)(b)

Problem 15.34 (a)(c)

[Previous Exam Problems]

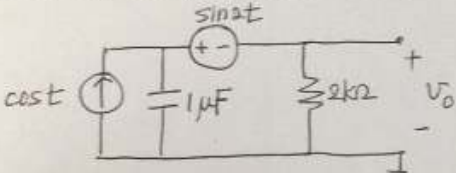
1. [20 points] 다음 RLC 회로에 대한 물음에 답하여라.



(a) [10 points] 등가 임피던스가 실수가 되도록 하는 공진 주파수 ω 를 구하여라. Find the resonance frequency (ω) to make the equivalent impedance be real.

(b) [10 points] 이 회로의 주파수 응답 $H(j\omega) = \frac{V_o(j\omega)}{V_i(j\omega)}$ 을 구하고 크기 $|H(j\omega)|$ 를 근사적으로 도식하여라. Find the frequency response of the circuit, $H(j\omega) = \frac{V_o(j\omega)}{V_i(j\omega)}$ and sketch the magnitude plot $|H(j\omega)|$. Hint: Find the values at ($\omega = 0, \infty$, resonance frequency)

2. [10 points] 다음 회로에서 sinusoidal steady state 에서의 출력 전압을 구하여라.



Find the output voltage at the steady state.