

PROBLEM 1 (100 points)

Consider the circuit shown below. The circuit is a series RLC circuit with a voltage source $v_s(t) = 10 \cos(1000t)$ V, a resistor $R = 10 \Omega$, an inductor $L = 10 \text{ mH}$, and a capacitor $C = 10 \mu\text{F}$.

