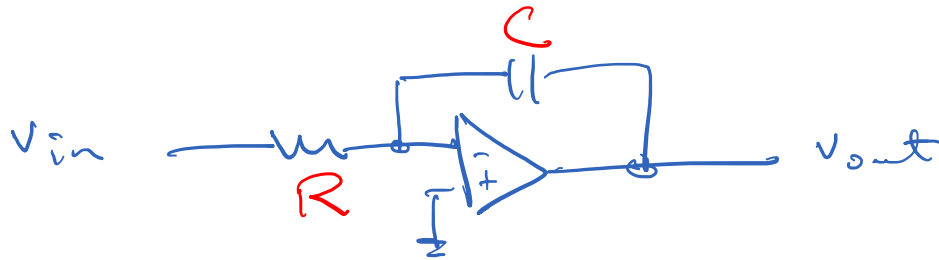


PS 3

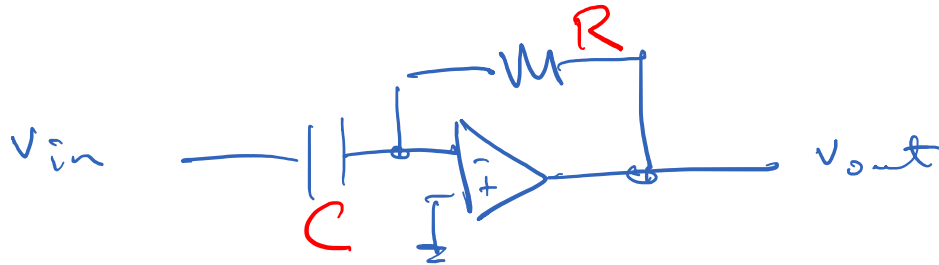
1. CONSIDER THE FOLLOWING CIRCUIT



A. CALCULATE $V_{out}(t)$ FOR ARBITRARY $V_{in}(t)$

B. CONSIDER $V_{in} = V_0 e^{j\omega t}$. CALCULATE $V_{out}(\omega)$

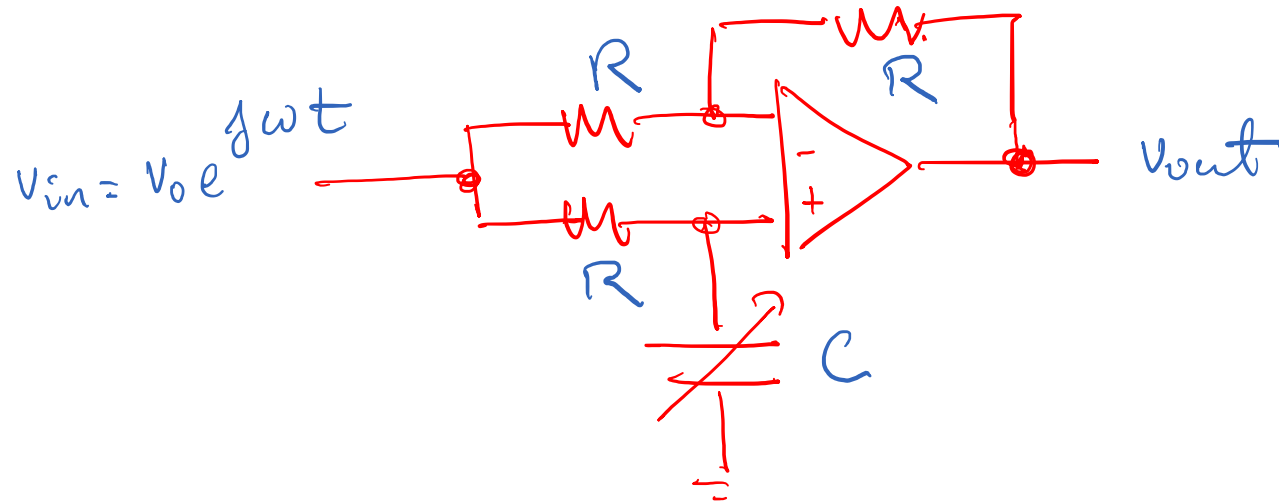
2. CONSIDER THE FOLLOWING CIRCUIT



A. CALCULATE $V_{out}(t)$ FOR ARBITRARY $V_{in}(t)$

B. CONSIDER $V_{in} = V_0 e^{j\omega t}$, CALCULATE $V_{out}(\omega)$

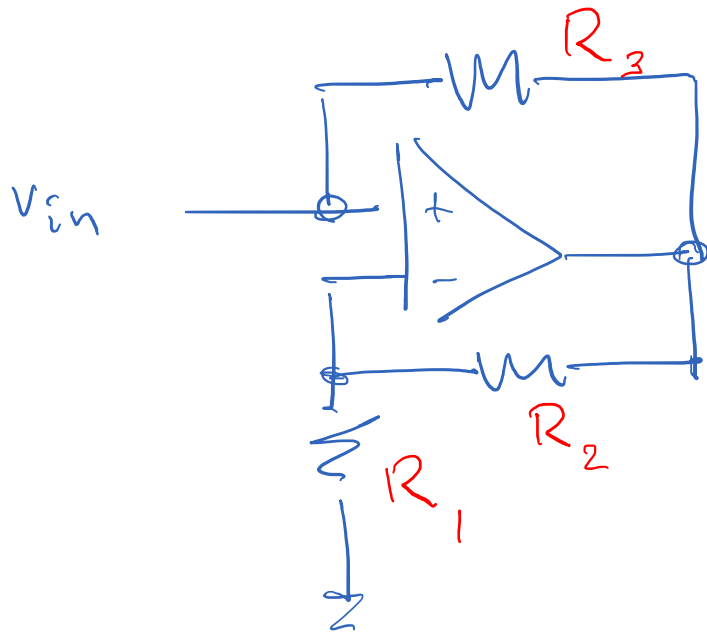
3. CONSIDER THE FOLLOWING CIRCUIT



CALCULATE THE MAGNITUDE AND PHASE [RELATIVE TO V_{in}] OF V_{out} AS A FUNCTION OF FREQUENCY ω . EXPRESS YOUR ANSWER IN TERMS OF $\tau = RC$.

PLOT THE PHASE OF $\frac{V_{out}}{V_{in}}$ VS. ω .

4. CONSIDER THE CIRCUIT BELOW



WHAT IS THE INPUT IMPEDANCE?