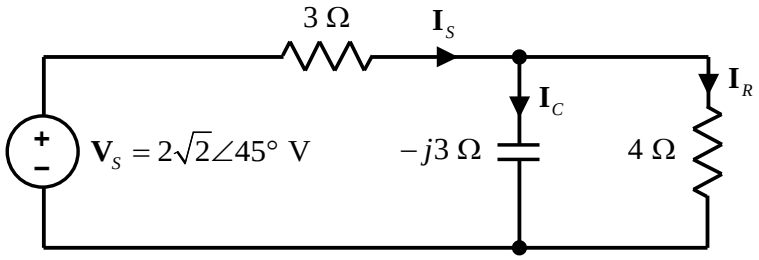
EE 3340

Homework Problem #044

For the circuit shown:



(a) Apply current division to express $\mathbf{I}_C$ and $\mathbf{I}_R$ in terms of $\mathbf{I}_S$ (***Not*** in terms of $\mathbf{V_s}$.).

(b) Using $\mathbf{I}_S$ as reference, accurately sketch a ***relative*** phasor diagram showing $\mathbf{I}_C$, $\mathbf{I}_R$, and $\mathbf{I}_S$ and verify that the vector sum $\mathbf{I}_R + \mathbf{I}_C = \mathbf{I}_S$ is satisfied.

(c) Now, fully analyze the circuit to determine $\mathbf{I}_S$ and then accurately sketch the ***absolute*** phasor diagram with $\mathbf{I}_C$, $\mathbf{I}_R$, and $\mathbf{I}_S$ drawn according to their true phase angles.