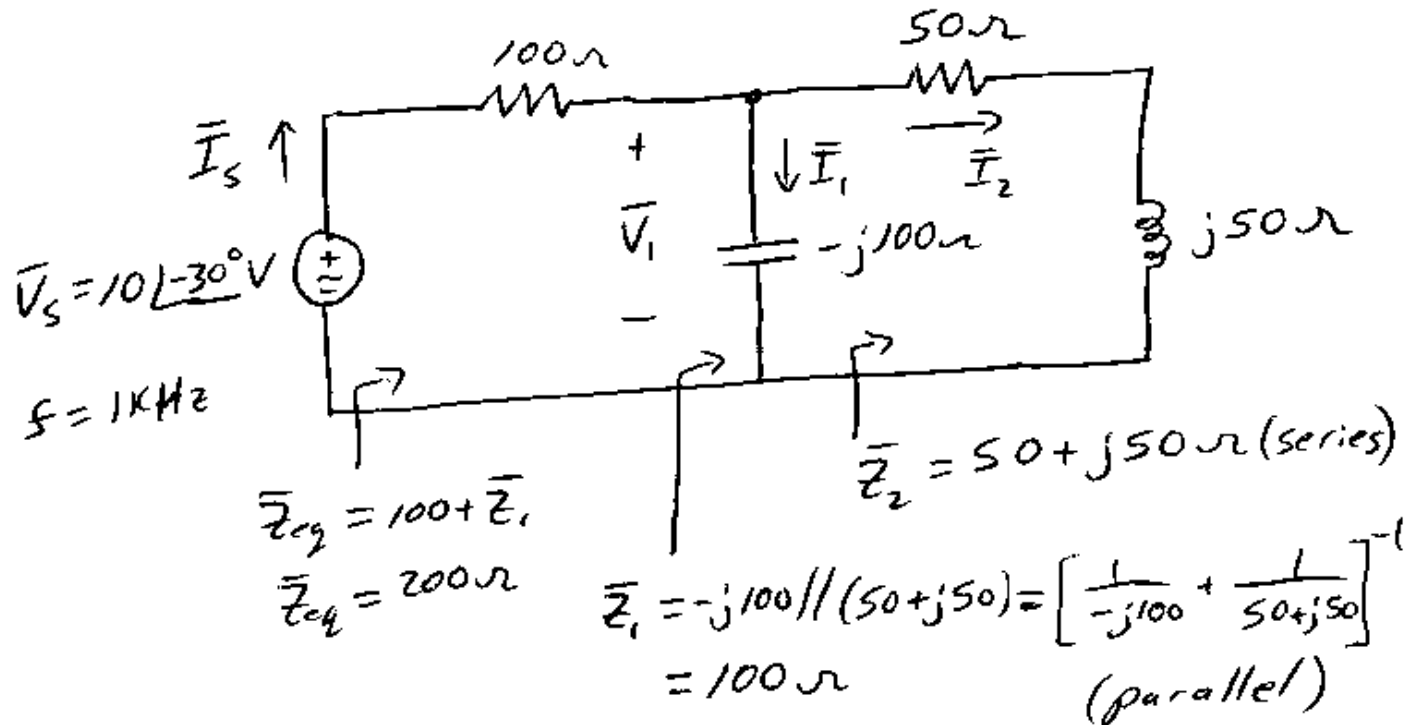


EX. For the phasor equivalent circuit shown, find the labeled phasor-currents and voltages as well as impedances.



By voltage division $\bar{V}_1 = \bar{V}_s \frac{\bar{Z}_1}{\bar{Z}_{eq}} = (10\angle -30^\circ) \frac{100}{200} = \underline{5\angle -30^\circ \text{ V}}$

By Ohm's Law $\bar{I}_s = \frac{\bar{V}_s}{\bar{Z}_{eq}} = \frac{10\angle -30^\circ}{200} = 0.05\angle -30^\circ \text{ A}$

$\bar{I}_s = 50\angle -30^\circ \text{ mA}$

By current division $\bar{I}_1 = \bar{I}_s \frac{\bar{Z}_2}{-j100} = (0.05\angle -30^\circ) \frac{100}{-j100}$

$\bar{I}_1 = 0.05\angle 60^\circ \text{ A} = 50\angle 60^\circ \text{ mA}$

$\bar{I}_2 = \bar{I}_s \frac{\bar{Z}_1}{50 + j50} = (0.05\angle -30^\circ) \frac{100}{50 + j50}$

$\bar{I}_2 = 0.0707\angle -75^\circ \text{ A} = 70.7\angle -75^\circ \text{ mA}$

Phasor Diagram

