

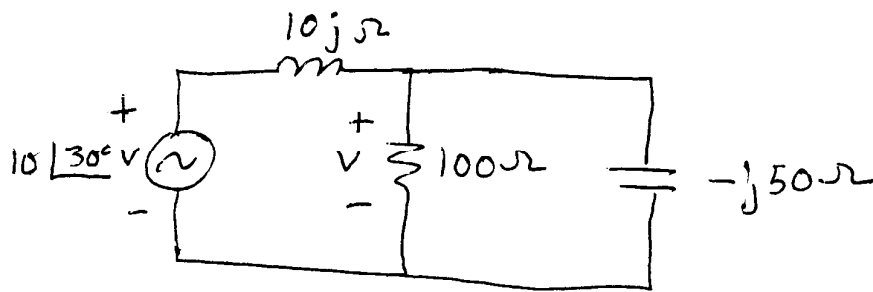
ECE 210 Q8 Nov 16, 2000

NAME:

Honor Code:

KEY

Find V in the following circuit.



$$\frac{V - 10 \angle 30^\circ}{10j} + \frac{V}{100} + \frac{V}{-j50} = 0$$

$$V \left(\frac{1}{10j} + \frac{1}{100} + \frac{1}{-j50} \right) = \frac{10 \angle 30^\circ}{10j}$$

$$V (-0.1j + 0.01 + 0.02j) = 1 \angle -60^\circ$$

$$V (0.01 - j0.08) = 1 \angle -60^\circ$$

$$V = \frac{1 \angle -60^\circ}{(0.01 - j0.08)} = \frac{1 \angle -60^\circ}{0.0806 \angle -82.875^\circ} = \boxed{12.41 \angle 22.87^\circ \text{ V}}$$