

ECE 301
Fall Semester, 2006
HW Set #9

Due: October 26, 2006
 wlg

Name _____
 Print(last, first)

circle: 2:10 section 3:40 section

Use Engineering Paper. Work only on one side of the paper. Use this sheet as your cover sheet, placed on top of your work and stapled in the top left-hand corner. Number the problems at the top of the page, in the center of the sheet. **Do neat work. Underline your answers. Show how you got your equations. Be sure to show how you got your answers.** Each problem counts 20 points.

- (1) For the circuit in Figure 9.1 $v_1(t) = 10\cos 4t$, V; $v_2(t) = 20\cos(4t - 30^\circ)$, V. Find the phasor currents \mathbf{I}_1 and \mathbf{I}_2 and $i_1(t)$ Ans: $I_1 = 2.74\angle -41.07^\circ$ A, $I_2 = 4.11\angle 92^\circ$ A, $i_1(t) = 2.74\cos(4t - 41.07)$ A

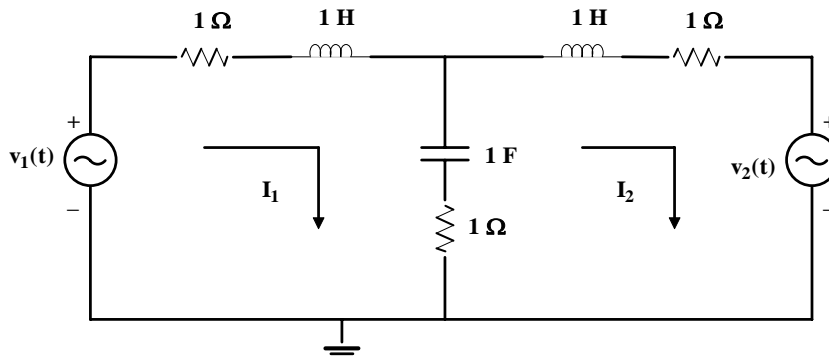


Figure 9.1: Circuit for problem 9.1.

- (2) Determine V_0 and I_0 in the following circuit. Ans: $I_0 = 8.49\angle 15^\circ$ A; $V_0 = 5.66\angle -75^\circ$ V

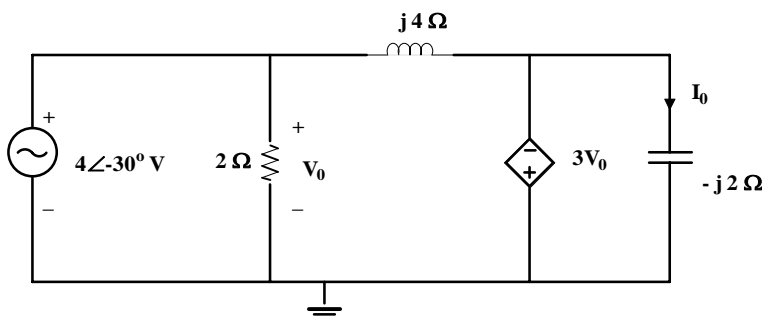


Figure 9.2: Circuit for problem 9.2.

(3) Find the Thevenin equivalent circuit looking into terminals a-b for the circuit shown in Figure 9.3.

Ans: $V_{Th} = 55.9 \angle 71.56^\circ \text{ V}$; $Z_{Th} = 11.18 \angle 26.56^\circ \Omega$

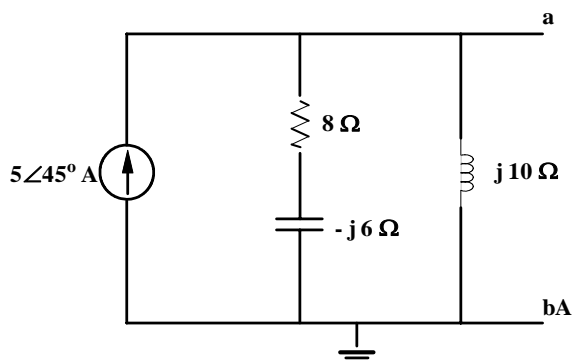


Figure 9.3: Circuit for problem 9.3.