ECE 300
Spring Semester, 2003
HW Set #9

Due: March 31, 2003 **Name_____**
wlg **Print (last, first)**
Revised: March 28

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 10 points.

7.12 $Z = 15.65\angle -26.6^o\ \Omega$

7.14 $Z_{AB} = 4.8\angle -7.34^o\ \Omega$

7.18 $C = 431\ \mu F$

7.24 $V_R = 1.44\angle -43.4^o$ V, $V_L = 1.36\angle 46.6$ V

7.27 $f = 502.3$ Hz

7.29 $V_O\ 45\angle -23.1^o$ V

7.35 $I_O = -2.68\angle 63.4^o$ A

7.38 $V_S = 5.9\angle -23.5$ V

7.51 $V_O = 9.04\angle 51.3^o$ V

7.55 $V_O = 0.8 + j2.4$ V

7.63 Do in two steps: First find Thevenin looking to the left of the –j1 Ω impedance and ground. The answer there is $V_{TH1} = 12\angle 0$, $Z_{TH1} = -j1\ \Omega$: $V_O = 6.66\angle 33.7$ V

7.70 Work this problem by (a) Norton's Theorem (actually find the short-curcuit current by direct circuit analysis. **Do not** find Thevenin's circuit and convert to Norton.). You should find that the $I_{ss} = 2.83\angle 45$ A. $Z_N = 3.71\angle 68.2\ \Omega$. (b) Solve by Nodal Analysis, (c) Solve by Mesh.

Answer: $V_x = 21.7\angle 5.1$ V (close)

7FE-4 $\dfrac{V_o}{V_s} =$ **- 133.3**