ELEC 243
Problem Set 8
Homework Section
Due: March 20, 2015

H8.1 Work Problem 4.8 in K&I.

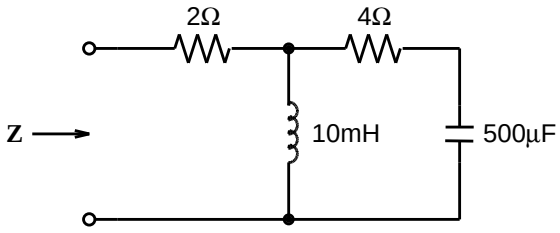
H8.2 Work Problem 4.11 in K&I.

H8.3 Work Problem 4.21 in K&I.

H8.4 Write the following as phasors:

- **(a)** $i(t) = 3\cos(\omega t + 45^\circ)$
- **(b)** $x(t) = X_M \sin(\omega t)$
- **(c)** $v_1(t) = -6\cos(\omega t - 30^\circ)$
- **(d)** $v_2(t) = 5\sin(\omega t + 10^\circ)$
- **(e)** $v(t) = v_1(t) + v_2(t)$ (where v_1 and v_2 are given in parts (c) and (d))

H8.5 In the network below, find **Z** at a frequency of 60 Hz.



H8.6 Find the impedence of the circuit below if the time-domain functions represented by the phasors **V** and **I** are

- **(a)** $v = -30\cos 2t + 16sin2t$ V, $i = 1.7\cos(2t + 20^\circ)$ A.
- **(b)** $v = \mathrm{Re}[je^{j2t}]$ V, $i = \mathrm{Re}[(1+j)e^{j(2t+30^\circ)}]$ mA.
- **(c)** $v = aV_m\cos(\omega t + \theta)$ V, $i = V_m\cos(\omega t + \theta - \alpha)$ A.