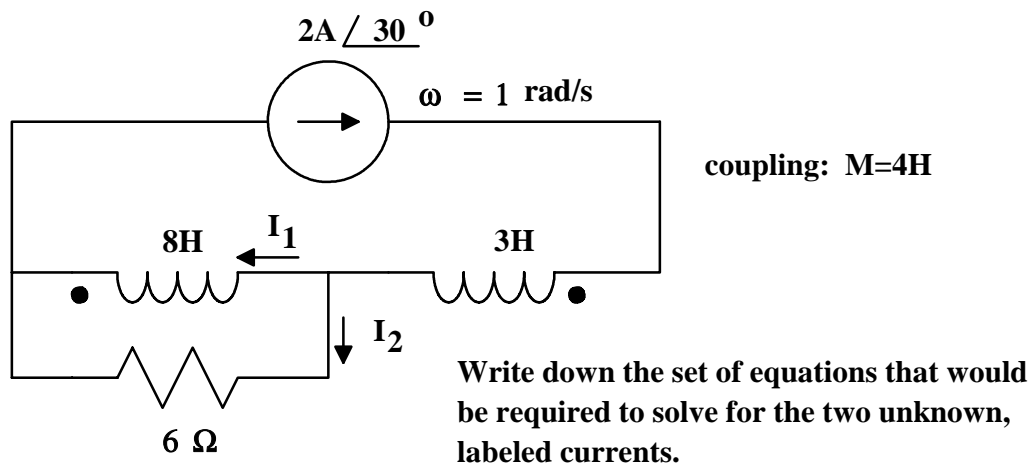
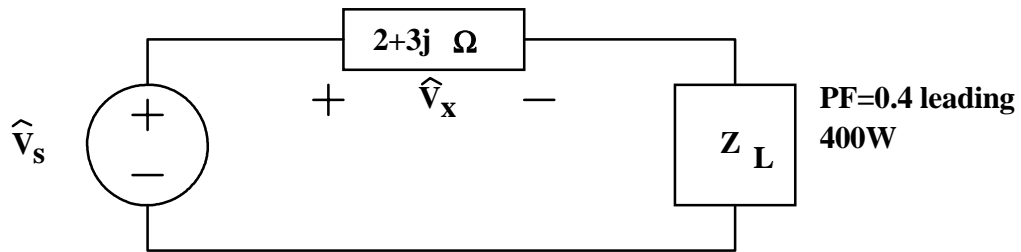


1.



2.



If  $\hat{V}_x = 14.42V$  at 35 degrees, find  $Z_L$ .

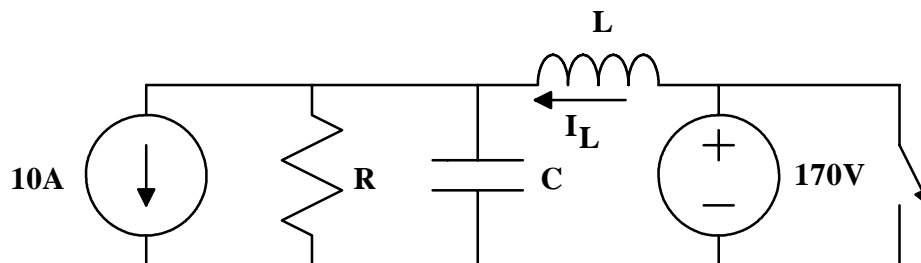
3. Given the transfer function: 
$$\hat{H} = \frac{\left(1 + \frac{j\omega}{1000}\right)^2}{\left(1 + \frac{j\omega}{10}\right)\left(1 + \frac{j\omega}{100,000}\right)}$$

(a.) Create a magnitude Bode plot.

(b.) Create an angle Bode plot.

(c.) If the input to the circuit is  $2.0V \cos(5000t)$ , what will be the time dependent output.

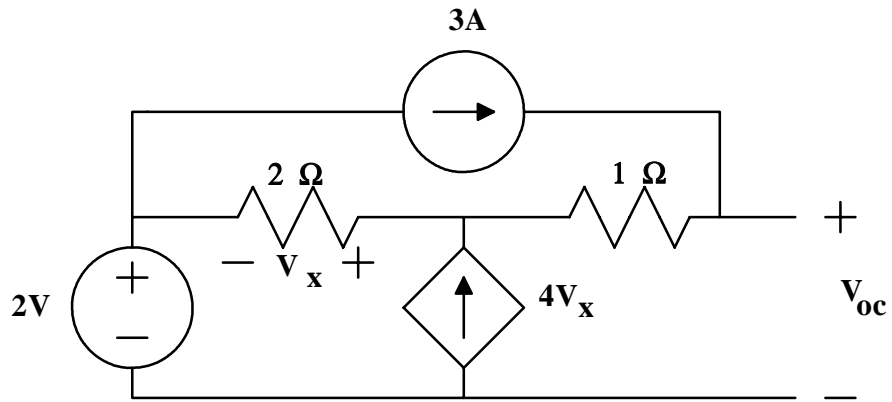
4.



$R=8.5$  Ohms,  $C=1/17$  F,  $L=1.0H$ . The switch is closed at time=0.

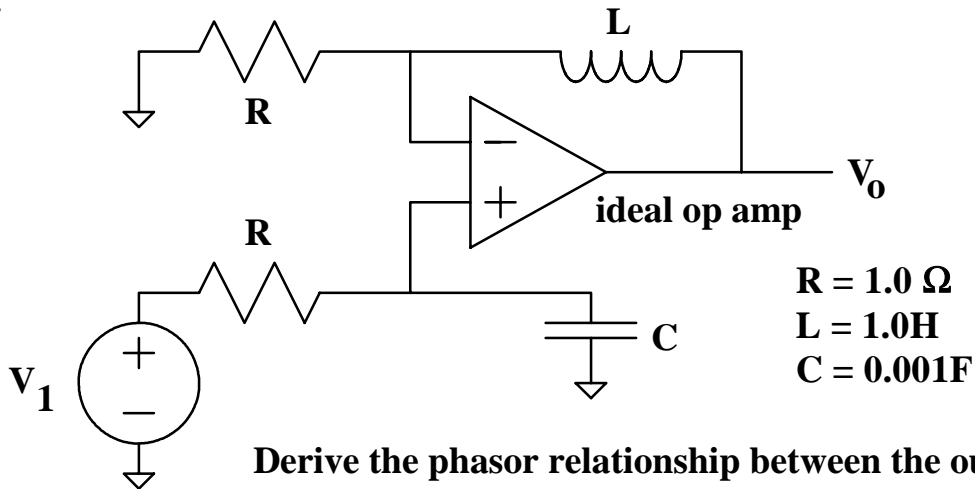
Find the inductor current as a function of time.

5.



- (a.) Use the node voltage technique to find the open circuit voltage.  
 (b.) Find the Thevenin resistance by the deactivation method.

6.



$$\begin{aligned} R &= 1.0 \Omega \\ L &= 1.0H \\ C &= 0.001F \end{aligned}$$

**Derive the phasor relationship between the output voltage and the input voltage, assuming that the op amp is not saturated.**