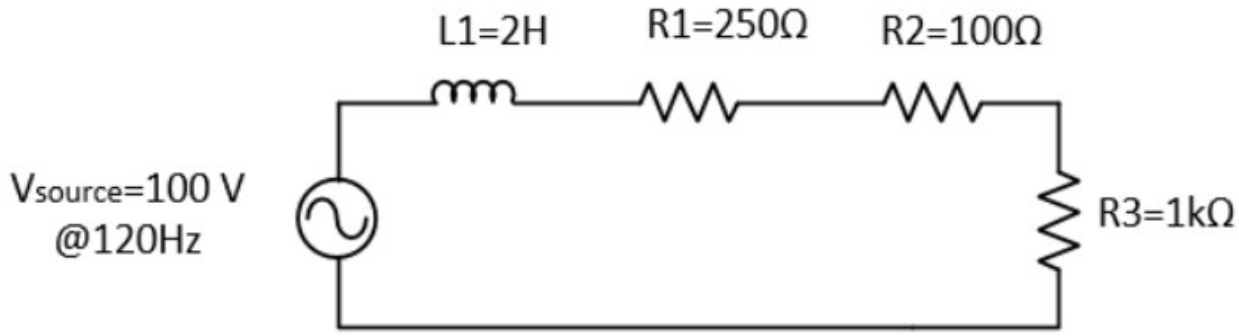
Take Home - AC II Theory 12/2/17 Rasmussen Name_____

1. Calculate the values for the following circuit. **Show all your work!**

Z	
I total	
Vl1	
VR1	
VR2	
VR3	

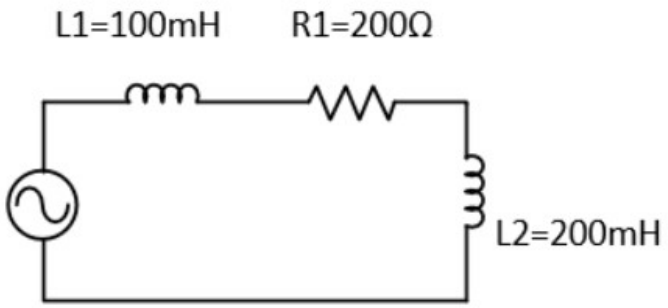


2. A 60Hz circuit with a 30 V power source has two inductors and a 250 Ω resistive load. One inductor is 2H with a 10 Ω resistive value and the second it 3H with 10 Ω resistive value.
    a. What is the total current for this circuit?
    b. What is the voltage across the 250 Ω resistor?

Show all your work below

3. What happens to current (amps) across R1 as the frequency of the circuit increases?

Show how you come to the answer below



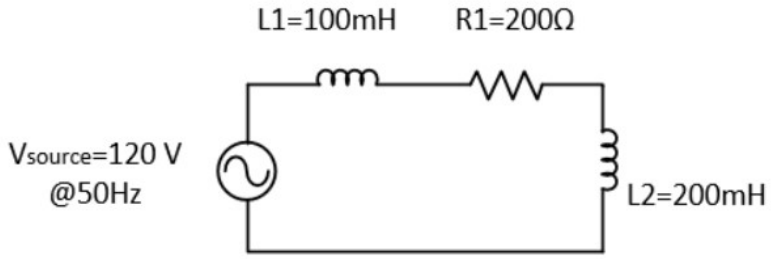
4. Convert the following decimal numbers to Scientific Notation:

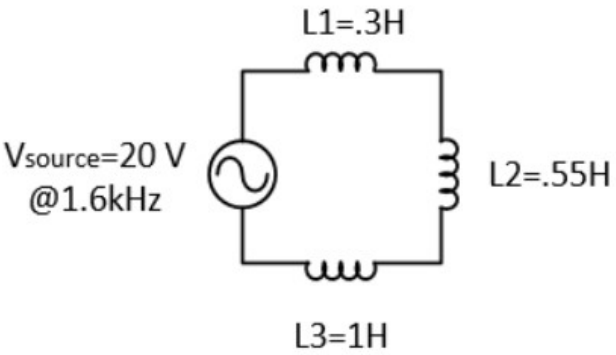
181,000,000	
5,800,000	
7,907,000	
63,000	
.0000031	
.000054	
15960	
1080	
.03	
.100	
0.0169	

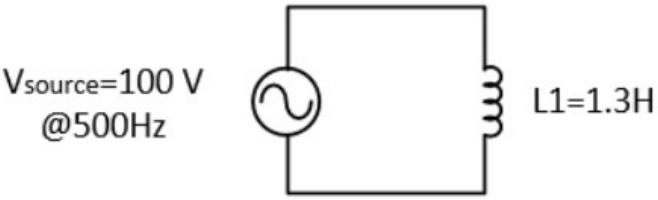
5. Convert the following Scientific Notation numbers to decimal:

25M	
2G	
.03m	
250n	
12p	
32k	
652k	
150µ	
1.6m	
.098µ	
.065m	

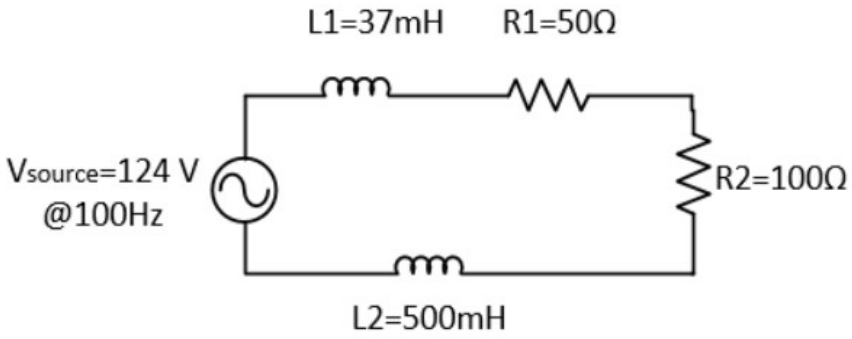
6. Solve for X_L ***Show all your work below***

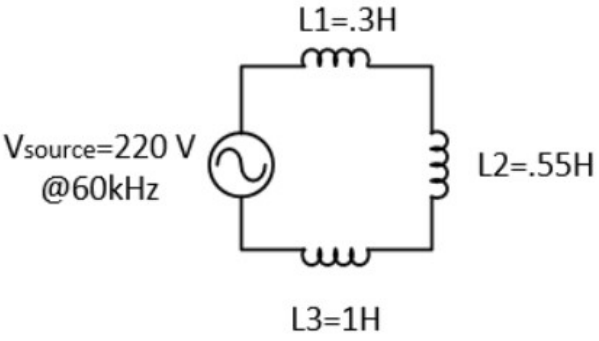


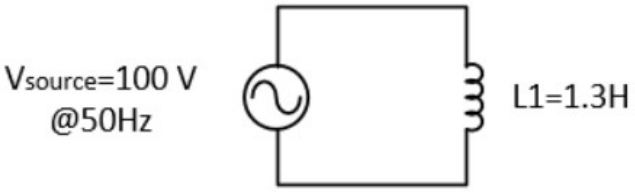




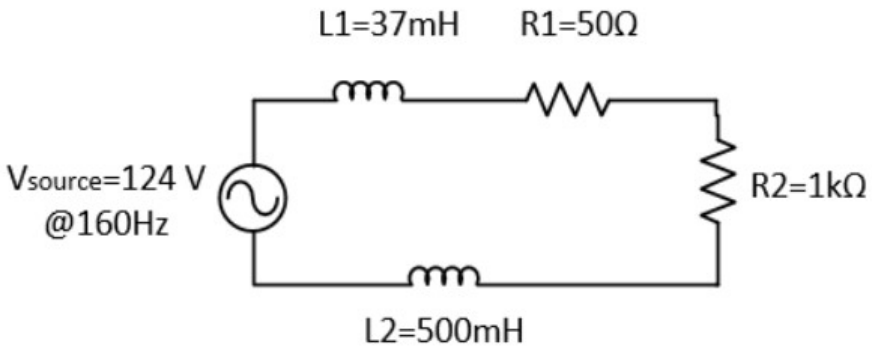
7. What is the total impedance for the following circuits? ***Show all your work below***

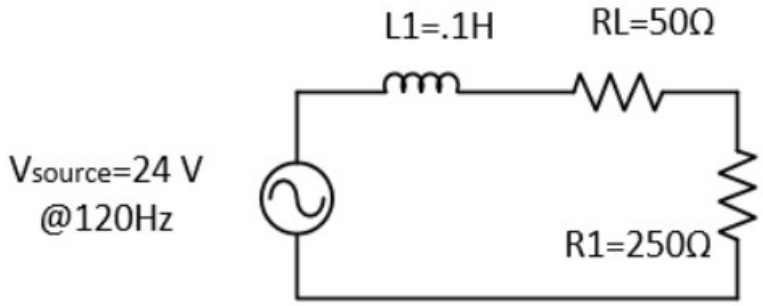


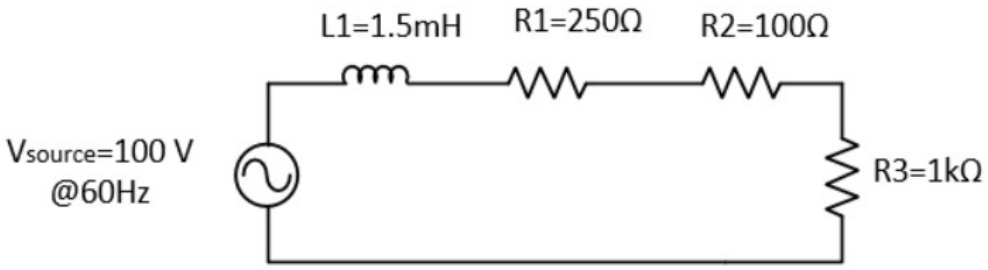




8. Find the values for VA and VAR in the following circuits. ***Show all your work below***







9. Find the Power Factor for the following circuits. ***Show all your work below***