ENGT 3050 Homework #7
Fundamentals of Electricity
NAME Alexander J King

1. The equation for capacitive reactance is C?
   a. $\frac{1}{2\pi fL}$
   b. $2\pi fC$
   c. $\frac{1}{2\pi fC}$
   d. $2\pi fL$

2. The equation for inductive reactance is D?
   a. $\frac{1}{2\pi fL}$
   b. $2\pi fC$
   c. $\frac{1}{2\pi fC}$
   d. $2\pi fL$

3. As frequency increases capacitive reactance C?
   a. Stays the same
   b. Increases
   c. Decreases
   d. Goes negative

4. As frequency increases inductive reactance B?
   a. Stays the same
   b. Increases
   c. Decreases
   d. Goes negative

5. Reactance lies on which axis of the complex plane?
   a. X
   b. Y
   c. Z
   d. Imaginary
   e. B and D

D

6. Capacitive reactance on the complex plane is?
   a. Positive
   b. Negative

B

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7. Inductive reactance on the complex plane is?
   a. Positive
   b. Negative

A

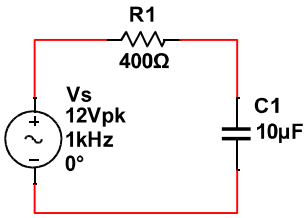
8. $250 - j440$ in polar notation is?
   a. $-506\angle -60$
   b. $506\angle -60$
   c. $-506\angle 60$
   d. $506\angle 60$

B

9. $25\angle 40$ in rectangular form is?
   a. $-19.2 + j16.1$
   b. $19.2 + j16.1$
   c. $19.2 - j16.1$
   d. $-19.2 - j16.1$

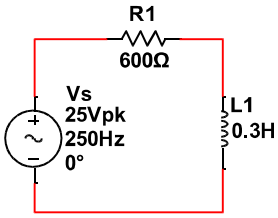
B

10. Find Z_T , I_T and phase angle between Vs and I_T



Zeq = z1||z2
z1 = 400ohm z2 10uF
.5pi*.00001*1000 = z2 = .0157ohm
(400*.0157)/400.0157 = Zt= .015699kohm
z=v/i i= z*v
Z= 15.699 v = 12 I = 15.699*12 = 188.388
It =.8660 A
Phasea=-87.7215 deg

11. Find Z_T , I_T and phase angle between Vs and I_T



Zt = 370.6001
Phase a = 51.85397
It = 0.27027A

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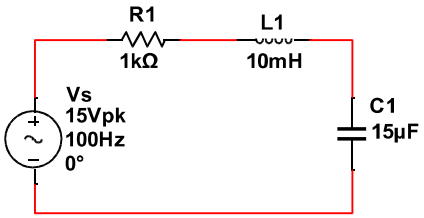
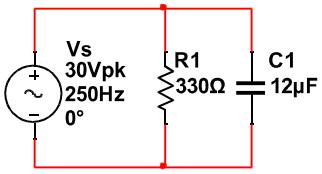
12. Find Z_T , I_T and phase angle between Vs and I_T



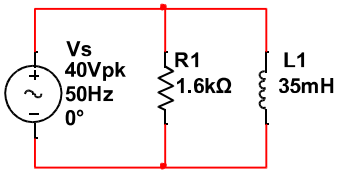
Zt = 6.6785 ohm
It = 1.5902 a
Phase A = 89.617 deg

13. Find Z_T , I_T and phase angle between Vs and I_T



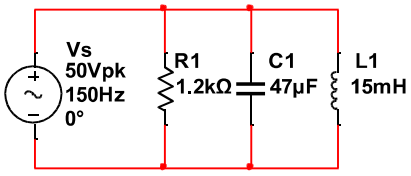
Z= 52.3791ohm
It = 0.4049 Amp
Phase Angle:-80.8671

14. Find Z_T , I_T and phase angle between Vs and I_T



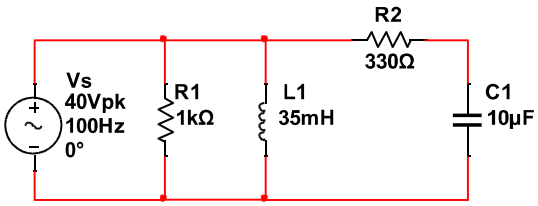
Z= 10.9953 ohm
It = 3.2150 amp
Phase A = 89.6062 deg

15. Find Z_T , I_T and phase angle between Vs and I_T



Zt = 37.8040 ohm
Phase A = 88.1946
It = 0.9351 A

16. Find Z_T , I_T and phase angle between Vs and I_T



Zt = 25.3830 ohm

It= 1.1141 amp

Phase A = 84.128280377863