



**Arab Academy for Science & Technology
and Maritime Transport – Cairo Branch
College of Engineering & technology
Electronics & Communication Engineering Department**

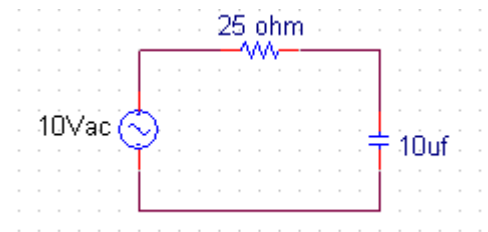


Fundamentals of Electricity and Electronics

EC134

Problem Set No.4

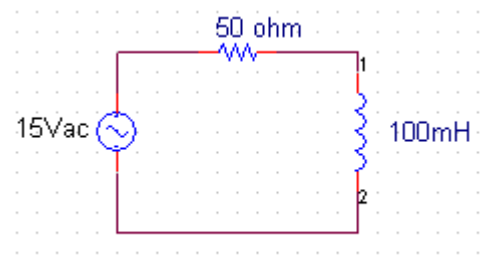
- 1- Given an input signal
 $V(t) = 10 \angle 30^\circ$, $f = 200$ hz.



Find:

- a- Capacitive reactance (X_c)
- b- Total impedance (Z)
- c- Total current [$I(t)$]
- d- The voltage across the resistance and the capacitor

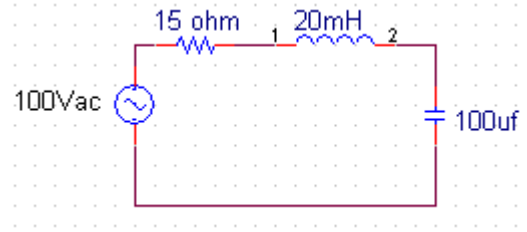
- 2- Given an input signal
 $V(t) = 15 \angle -10^\circ$, $f = 50$ hz.



Find:

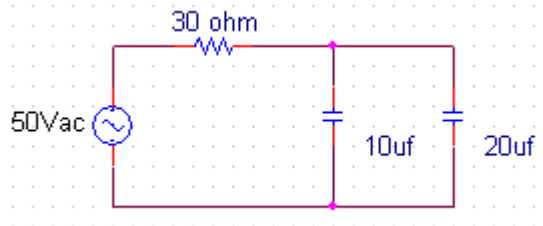
- a- Inductive reactance (X_L)
- b- Total impedance (Z)
- c- Total current [$I(t)$]
- d- The voltage across the resistance and the coil.

- 3- Given an AC source with parameters:
 $10\text{v} / 50\text{hz} / 30^\circ$



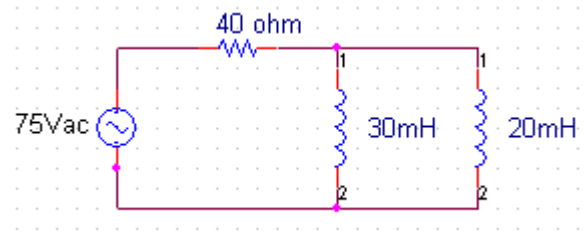
Find:

- Inductive reactance (X_L)
 - Capacitive reactance (X_C)
 - Total impedance (Z)
 - Total current [$I(t)$]
- 4- Given:
 $V(t) = 50 \angle -30^\circ$, $f = 50\text{hz}$.



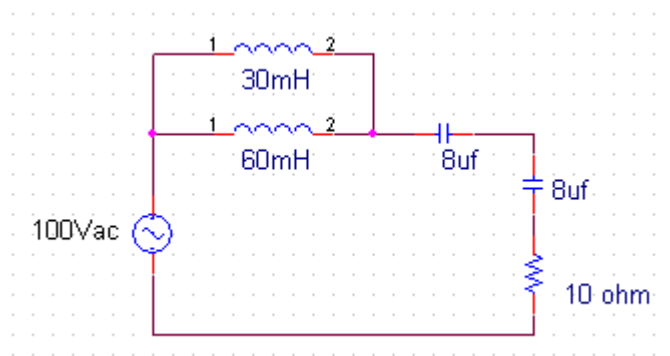
Find:

- Capacitive reactance (X_C)
 - Total impedance (Z)
 - Total current [$I(t)$]
- 5- Given an AC source with parameters:
 $75\text{v} / 50\text{hz} / 0^\circ$.



Find $I(t)$.

- 6- Given:
 $V(t) = 100 \sin 60t$, $f = 50 \text{ Hz}$.



Find $I(t)$.