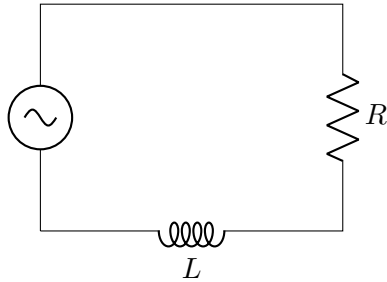


NAME: _____

STUDENT #: _____

Question 1

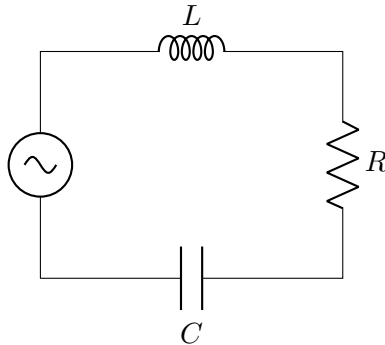
(3 marks) In a a series RL circuit with $L = 1.5H$, $f = 400Hz$, $V_L = 6.5V$ and $Z = 8k\Omega$ determine



- The reactance X_L and the current I .
- The resistance R and the voltage V_R .
- The total voltage V_T .

Question 2

(4 marks) In a series RLC circuit with $V = 110\angle 0^\circ V$, $R = 1.2\text{ k}\Omega$, $L = 0.5\text{ H}$, $C = 150\text{ nF}$, and $f = 1.0\text{ kHz}$ determine

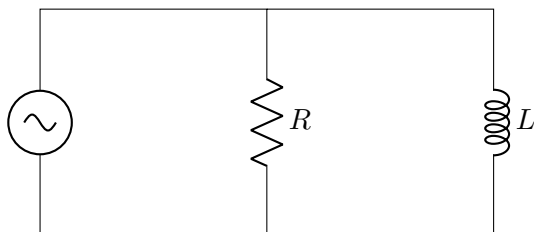


- The reactances X_C and X_L and the impedance Z .
- The current I in polar form.
- The voltages V_R , V_L , V_C in polar form.
- The True power P .

Question 3

(4 marks)

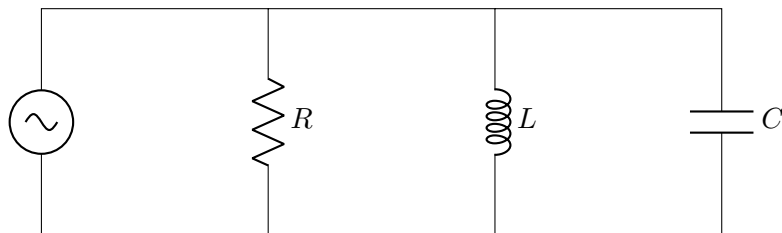
Consider a RL parallel circuit



with $R = 8 \text{ k}\Omega$, $L = 20 \text{ mH}$, $f = 6.0 \text{ kHz}$ and $I_L = 5.5 \angle -90^\circ \text{ mA}$. Determine I_T and Z in both polar and rectangular forms as well as the equivalent RL series circuit.

Question 4

(4 marks) Consider a RLC parallel circuit

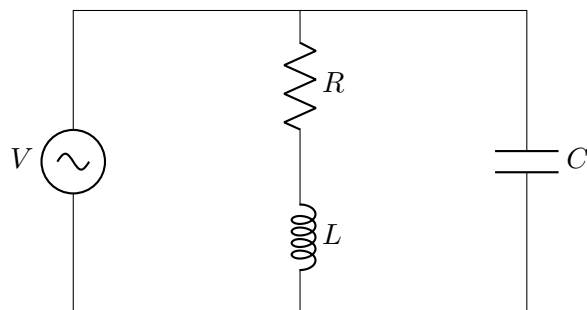


with $V = 150\angle 0^\circ V$, $R = 6.2\text{ k}\Omega$, $X_C = 8\text{ k}\Omega$ and $X_L = 4\text{ k}\Omega$. Determine I_R , I_C , I_L , I_T and Z in both polar and rectangular forms as well the resistance and the reactance of the equivalent RC or RL series circuit.

Question 5

(5 marks)

Consider the ac network



with $V = 90V\angle 0^\circ$, $R = 2.5k\Omega$, $f = 50kHz$, $L = 5.5\text{ mH}$ and $C = 5nF$. Determine all the currents and all the voltages as well as the total impedance in both polar and rectangular forms.