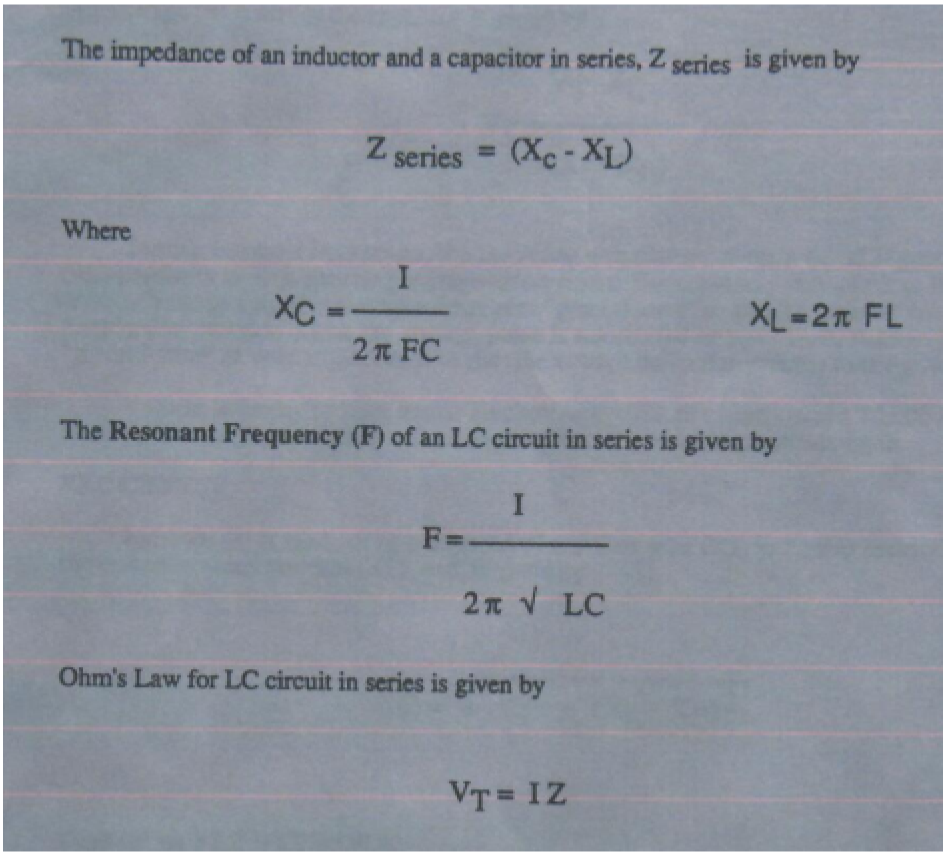
LC VOLTAGE

> The impedance of an inductor and a capacitor in series, $\mathbf{Z_{series}}$, is given by



The impedance of an inductor and a capacitor in series, Z_{series} is given by

$$Z_{series} = (X_C - X_L)$$

Where

$$X_C = \frac{I}{2\pi FC} \qquad X_L = 2\pi FL$$

The Resonant Frequency (F) of an LC circuit in series is given by

$$F = \frac{I}{2\pi \sqrt{LC}}$$

Ohm's Law for LC circuit in series is given by

$$V_T = IZ$$

> “ Z_{series} = (Xc−Xl)

Where

> “ Xc = 1 / 2(pi)FC

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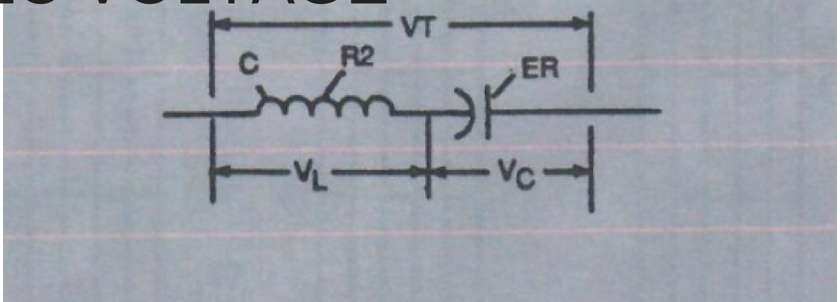

FIGURE 1 - 2. LC CIRCUIT SCHEMATIC

The voltage across the **inductor** (c) or **capacitor** (*ER of t*) is greater than the **applied voltage** (h).

> At frequency close to resonance, the voltage across the individual components is higher than the **applied voltage** (h), and, at resonant frequency, the voltage VT across both the inductor and the capacitor are theoretically infinite.

> However, physical constraints of components and circuit interaction prevent the voltage from reaching infinity.

The **voltage** (V_L) across the **inductor** (C) is given by the equation:

The voltage (V_L) across the inductor (C) is given by the equation

$$V_L = \frac{V_T X_L}{(X_L - X_C)}$$

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