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# Electronics

## RLC Impedance



| Impedance [ $\Omega$ ]                             | Low Frequency               | Medium Frequency | High Frequency |
|----------------------------------------------------|-----------------------------|------------------|----------------|
| Resistance, R                                      | Doesn't depend on frequency |                  |                |
| Inductive Reactance<br>$X_L = 2\pi f L$            | Low                         | Medium           | High           |
| Capacitive Reactance<br>$X_C = \frac{1}{2\pi f C}$ | High                        | Medium           | Low            |

## RLC Addition

|                          | Series                                        | Parallel                                      |
|--------------------------|-----------------------------------------------|-----------------------------------------------|
|                          |                                               |                                               |
| Resistor, R [ $\Omega$ ] | $R = R_1 + R_2$                               | $\frac{1}{R} = \frac{1}{R_1} + \frac{1}{R_2}$ |
|                          |                                               |                                               |
| Inductor, L [H]          | $L = L_1 + L_2$                               | $\frac{1}{L} = \frac{1}{L_1} + \frac{1}{L_2}$ |
|                          |                                               |                                               |
| Capacitor, C [F]         | $\frac{1}{C} = \frac{1}{C_1} + \frac{1}{C_2}$ | $C = C_1 + C_2$                               |

## Questions

