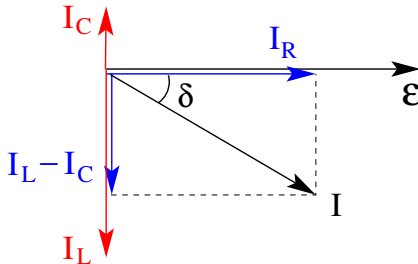




Impedance: $\frac{1}{Z} \equiv \frac{I_{max}}{\mathcal{E}_{max}} = \sqrt{\frac{1}{R^2} + \left(\frac{1}{\omega L} - \omega C\right)^2}$

Current amplitude and phase angle:

- $I_{max} = \frac{\mathcal{E}_{max}}{Z} = \mathcal{E}_{max} \sqrt{\frac{1}{R^2} + \left(\frac{1}{\omega L} - \omega C\right)^2}$
- $\tan \delta = \frac{I_{L,max} - I_{C,max}}{I_{R,max}} = \frac{1/\omega L - \omega C}{1/R}$



Currents through devices:

- $I_R = \frac{\mathcal{E}}{R} = \frac{\mathcal{E}_{max}}{R} \cos(\omega t) = I_{R,max} \cos(\omega t)$
- $I_L = \frac{1}{L} \int \mathcal{E} dt = \frac{\mathcal{E}_{max}}{\omega L} \sin(\omega t) = I_{L,max} \cos\left(\omega t - \frac{\pi}{2}\right)$
- $I_C = C \frac{d\mathcal{E}}{dt} = -\omega C \mathcal{E}_{max} \sin(\omega t) = I_{C,max} \cos\left(\omega t + \frac{\pi}{2}\right)$