



Дәріс-6. R, L, C элементтерінің импеданстары.

$$v = V_m \sin \omega t \Rightarrow V = V \angle 0^\circ$$

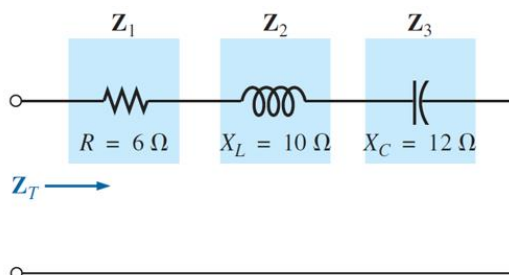
берілсін.

$$I = \frac{V \angle 0^\circ}{R \angle 0^\circ} = \frac{V}{R} \angle 0^\circ - 0^\circ = \frac{V}{R} \angle 0^\circ \Rightarrow \boxed{Z_R = R \angle 0^\circ}$$

$$I = \frac{V \angle 0^\circ}{X_L \angle 90^\circ} = \frac{V}{X_L} \angle -90^\circ \Rightarrow \boxed{Z_L = X_L \angle 90^\circ}$$

$$I = \frac{V \angle 0^\circ}{X_C \angle -90^\circ} = \frac{V}{X_C} \angle 90^\circ \Rightarrow \boxed{Z_C = X_C \angle -90^\circ}$$

RLC тізбек импедансы



**R = 6 Ом**  
**X<sub>L</sub> = 10 Ом**  
**X<sub>C</sub> = 12 Ом**  
**Z<sub>T</sub> = ?**

**Шешімі:**

$$\begin{aligned} Z_T &= Z_1 + Z_2 + Z_3 \\ &= R \angle 0^\circ + X_L \angle 90^\circ + X_C \angle -90^\circ \\ &= R + jX_L - jX_C \\ &= R + j(X_L - X_C) = 6 \Omega + j(10 \Omega - 12 \Omega) = 6 \Omega - j2 \Omega \\ Z_T &= \mathbf{6.32 \Omega \angle -18.43^\circ} \end{aligned}$$