

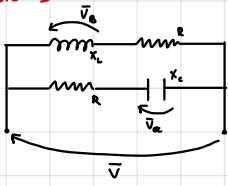
ESERCITAZIONE

ESERCIZIO 1

$$v(t) = -6 \cos(32t + \frac{\pi}{4}) = 6 \cos(32t + \frac{\pi}{4} + \pi) = 6 \cos(32t + \frac{5\pi}{4}) \rightarrow \bar{v} = 6 e^{j\frac{5\pi}{4}}$$

dobbiamo invertire anche il modulo del fasore è solo positivo

ESERCIZIO 3



$$\bar{V} = j10$$

$$R = 1 \Omega$$

$$X_L = 1 \Omega \quad X_C = -1 \Omega$$

$$\Delta \phi = \phi_a - \phi_b$$

$$Z_L = j\omega L, \quad X_L = \omega L \rightarrow Z_L = jX_L$$

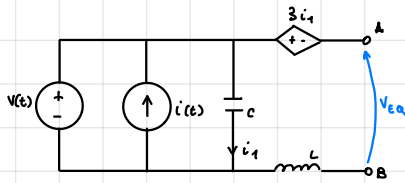
$$Z_C = \frac{1}{j\omega C} = -j\frac{1}{\omega C}, \quad X_C = -\frac{1}{\omega C} \rightarrow Z_C = jX_C$$

$$Z_R = R$$

$$\bar{V} = \bar{V}_R + \bar{V}_a = \bar{V}_B + \bar{V}_R \Rightarrow \bar{V}_a = \frac{Z_C}{Z_C + Z_R} \bar{V} = \frac{jX_C}{jX_C + R} \bar{V} = \frac{-j}{1-j} \bar{V} \Rightarrow \phi_a = \angle \bar{V} + \angle \frac{-j}{1-j} = \angle \bar{V} - \angle \frac{1-j}{1-j} = \frac{\pi}{2} + \frac{3}{2}\pi + \frac{\pi}{4} = \frac{7\pi}{4}$$

$$\bar{V}_B = \frac{Z_L}{Z_L + Z_R} \bar{V} = \frac{jX_L}{jX_L + R} \bar{V} = \frac{j}{1+j} \bar{V} \Rightarrow \phi_B = \angle \bar{V} + \angle \frac{j}{1+j} = \frac{\pi}{2} + \frac{\pi}{2} - \frac{\pi}{4} = \frac{3\pi}{4}$$

ESERCIZIO 5



$$L = 1H, \quad C = 1F$$

$$v(t) = \cos t, \quad i(t) = \cos t$$

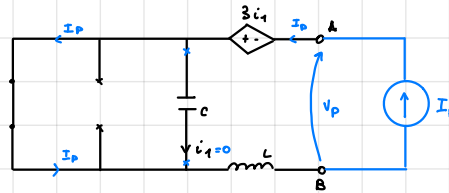
$$Z_L = j\omega L = j$$

$$Z_C = \frac{1}{j\omega C} = -j$$

Thévenin? Norton?

$$\bar{V}_{eq} = \bar{V} - 3\bar{i}_1 = \bar{V} - 3j\bar{V} = (1-3j)\bar{V}$$

$$\bar{i}_1 = \frac{\bar{V}}{Z_C} = j\bar{V}$$



$$Z_{eq} = Z_L = j$$