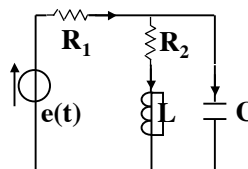
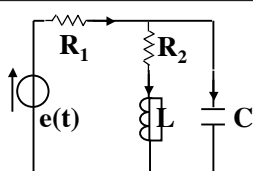


Lezione 30 bis

Un esempio



$$\begin{aligned} C &= 1\text{mF}; \\ L &= 50\text{ mH}; \\ R_1 &= 10\ \Omega; \\ R_2 &= 5\ \Omega; \\ e(t) &= 20\sqrt{2}\ \text{sen}(100t). \end{aligned}$$



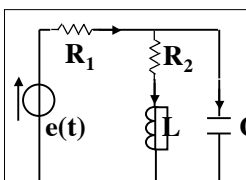
Un esempio

$$E = 20$$

$$X_L = \omega L = 5\ \Omega$$

$$X_C = \frac{1}{\omega C} = 10\ \Omega$$

- Due equazioni alle maglie;
- Una equazione ai nodi.



Un esempio

$$\begin{cases} \bar{I}_1 = \bar{I}_2 + \bar{I}_3; \\ \bar{E} = R_1 \bar{I}_1 + (R_2 + jX_L) \bar{I}_2 \\ (R_2 + jX_L) \bar{I}_2 = -jX_C \bar{I}_3 \\ \bar{E} = R_1 (\bar{I}_2 + \bar{I}_3) + (R_2 + jX_L) \bar{I}_2 \\ \bar{I}_3 = \frac{R_2 + jX_L}{-jX_C} \bar{I}_2 \end{cases}$$

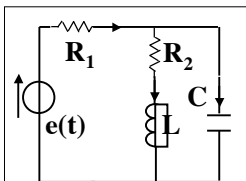
Un esempio

$$\bar{E} = \left(R_1 + R_2 - \frac{R_1 X_L}{X_C} + j \left(X_L + \frac{R_1 R_2}{X_C} \right) \right) \bar{I}_2$$

$$\bar{I}_2 = \frac{\bar{E}}{R_1 + R_2 - \frac{R_1 X_L}{X_C} + j \left(X_L + \frac{R_1 R_2}{X_C} \right)}$$

$$\bar{I}_2 = \frac{\bar{E}}{10 + j10} = \frac{\bar{E}}{10\sqrt{2} e^{j\frac{\pi}{4}}} = \sqrt{2} e^{-j\frac{\pi}{4}}$$

$$i_2(t) = 2 \text{sen} \left(100t - \frac{\pi}{4} \right)$$



Un diverso modo

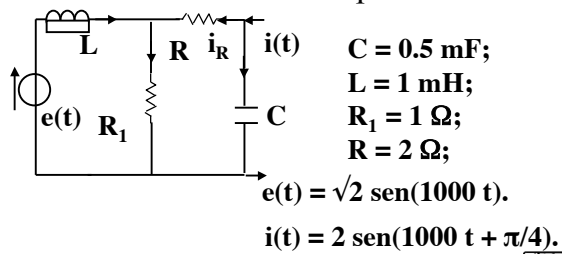
$$Z = R_1 + \frac{-jX_C(R_2 + jX_L)}{R_2 + j(X_L - X_C)}$$

$$\bar{I}_1 = \frac{\bar{E}}{Z}$$

$$\bar{I}_2 = \frac{\bar{E}}{Z} \frac{-jX_C}{R_2 + j(X_L - X_C)}$$

$$\bar{I}_2 = \frac{\bar{E}}{R_1 + R_2 - \frac{R_1 X_L}{X_C} + j \left(X_L + \frac{R_1 R_2}{X_C} \right)}$$

Un'altro esempio



Introduzione ai circuiti aa 2004/2005 slide n. 10



Fine della
Lezione 30 bis

Introduzione ai circuiti aa 2004/2005 slide n. 11

