Formule iz Osnova Elektrotehnike
koje se mogu koristiti na međuispitima-2 (jesen 2006)

$$\mu_0 = 4\pi \cdot 10^{-7} \frac{Vs}{Am}$$

$$\vec{F} = Q(\vec{v} \times \vec{B})$$

$$|\vec{F}| = IlB\sin(\alpha)$$

$$B = \mu_0 \frac{I}{2\pi r}$$

$$\Phi = \vec{B}\vec{S} = BS\cos(\alpha)$$

$$\Phi = \frac{NI}{\frac{l_{sr}}{\mu_0 S}}$$

$$u_i = Blv$$

$$e_{ind} = -N\frac{d\Phi}{dt}$$

$$L = N\frac{\Phi}{I}$$

$$u_L(t) = L\,\frac{di(t)}{dt}$$

$$W_L = \frac{LI^2}{2}$$

$$u(t) = Ri(t) \quad i(t) = \frac{u(t)}{R}$$

$$u(t) = L\frac{di(t)}{dt} \quad i(t) = \frac{1}{L}\int u(t)dt$$

$$u(t) = \frac{1}{C}\int i(t)dt \quad i(t) = C\frac{du(t)}{dt}$$

$$p(t) = u(t)i(t) \quad P = I^2\,R$$

$$w(t) = \int p(t)dt$$

$$\underline{a} = b + jc = Ae^{j\alpha} = A\angle\alpha$$

$$b = \mathfrak{Re}\{\underline{a}\} = A\cos\alpha$$

$$c = \mathfrak{Im}\{\underline{a}\} = A\sin\alpha$$

$$A = \sqrt{b^2 + c^2}$$

$$\alpha = \arctan\left(\frac{c}{b}\right)$$

$$u(t) = U_m\sin(\omega t + \alpha_u)$$

$$i(t) = I_m\sin(\omega t + \alpha_i)$$

$$\varphi = \alpha_u - \alpha_i$$

$$|\dot{U}| = \frac{U_m}{\sqrt{2}} \quad |\dot{I}| = \frac{I_m}{\sqrt{2}}$$

$$\underline{u} = U_m e^{j(\omega t + \alpha)}$$

$$\underline{U_m} = U_m e^{j\alpha}$$

$$\underline{U} = Ue^{j\alpha} = U\angle\alpha = \dot{U}$$

$$X_L = \omega L \qquad B_L = \frac{1}{\omega L}$$

$$X_C = \frac{1}{\omega C} \qquad B_C = \omega C$$

$$\underline{Z} = \mathrm{R} + j\mathrm{X}$$

$$\varphi = \arctan\left(\frac{\mathrm{X}}{\mathrm{R}}\right)$$

$$\underline{Y} = \mathrm{G} + j\mathrm{B}$$

$$\psi_Y = \arctan\left(\frac{\mathrm{B}}{\mathrm{G}}\right)$$

$$\varphi = -\psi_Y$$

Frekvencijske karakteristike:

$$Z(\omega) = \sqrt{R^2 + (\omega L - \frac{1}{\omega C})^2}$$

$$\varphi(\omega) = \arctan\frac{\omega L - \frac{1}{\omega C}}{R}$$

$$Y(\omega) = \sqrt{(\frac{1}{R})^2 + (\omega C - \frac{1}{\omega L})^2}$$

$$\varphi(\omega) = \arctan\frac{\omega C - \frac{1}{\omega L}}{R}$$

$$\omega_0 = \frac{1}{\sqrt{LC}} \quad \mathfrak{Im}\{\underline{Z}\} = 0 \quad \mathfrak{Im}\{\underline{Y}\} = 0$$