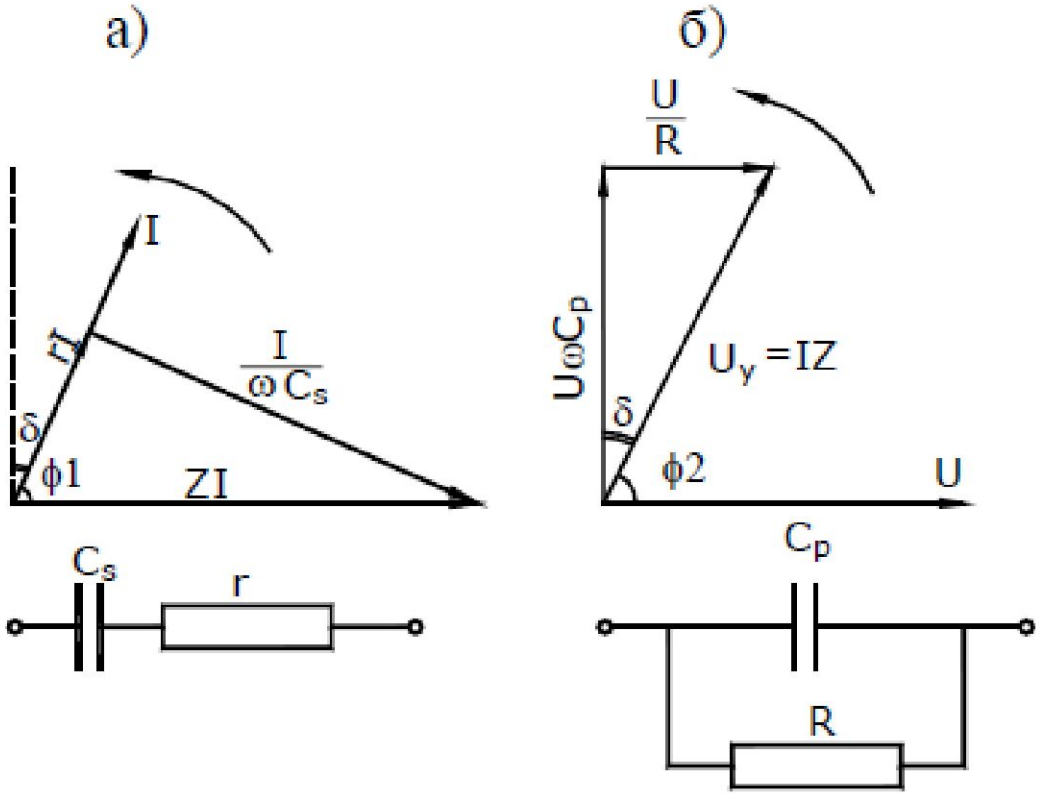
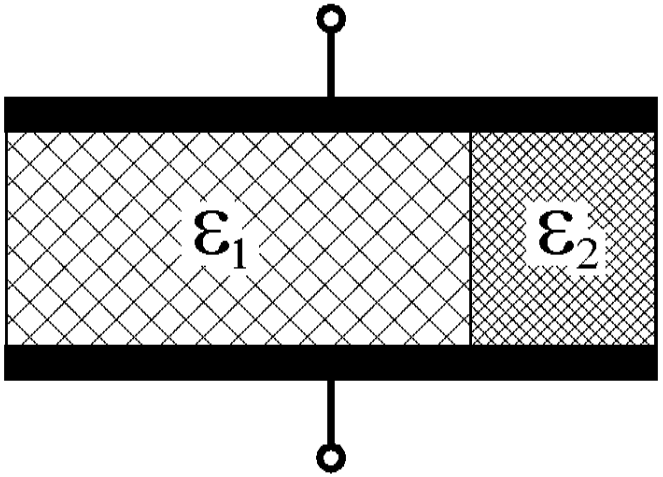
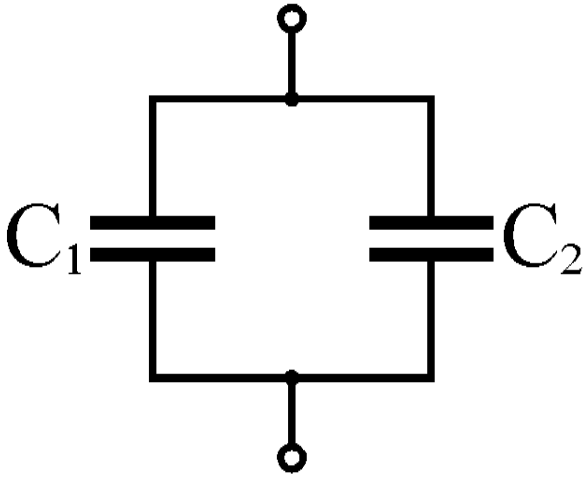

а)
I
rI
$\frac{I}{\omega C_s}$
δ
ϕ1
ZI
C_s
r
б)
$\frac{U}{R}$
$U\omega C_p$
$U_y = IZ$
δ
ϕ2
U
C_p
R





$$C = C_1 + C_2 = \frac{\varepsilon_0 \cdot \varepsilon_1 \cdot S_1}{h} + \frac{\varepsilon_0 \cdot \varepsilon_2 \cdot S_2}{h} = \frac{\varepsilon_0 \cdot \varepsilon \cdot S}{h}$$

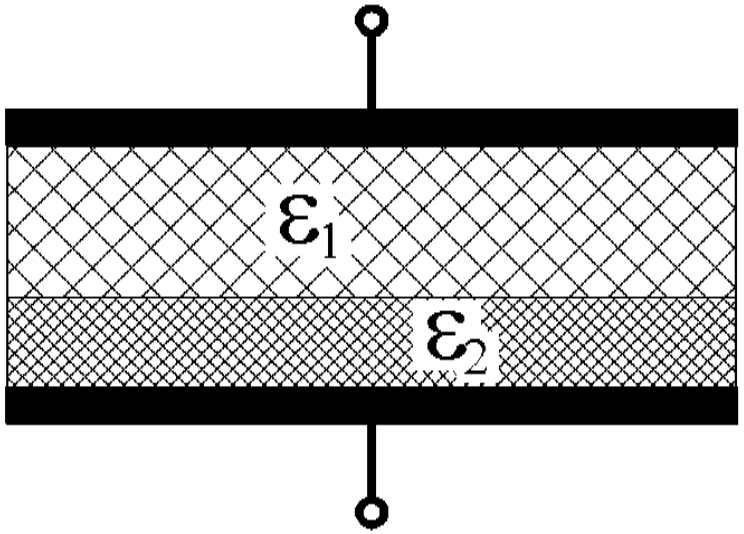
$$\theta_1 = \frac{S_1}{S_1 + S_2}; \qquad \theta_2 = \frac{S_2}{S_1 + S_2}; \qquad \theta_1 + \theta_2 = 1$$

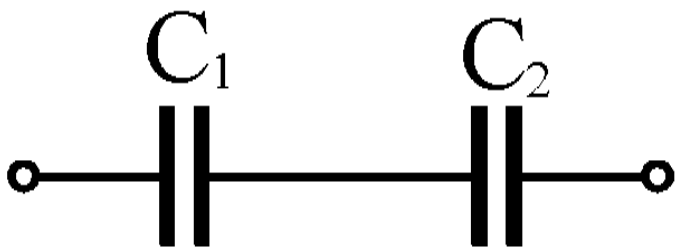
$$\varepsilon = \varepsilon_1 \cdot \theta_1 + \varepsilon_2 \cdot \theta_2$$

$$\sum_{i=1}^{i=n} \theta_i = 1; \qquad \varepsilon = \sum_{i=1}^{i=n} \varepsilon_i \cdot \theta_i$$

$$tg\delta = \frac{\theta_1 \cdot \varepsilon_1 \cdot tg\delta_1 + \theta_2 \cdot \varepsilon_2 \cdot tg\delta_2}{\theta_1 \cdot \varepsilon_1 + \theta_2 \cdot \varepsilon_2}$$

$$tg\delta = \frac{\sum_{1}^{n} \theta_i \cdot \varepsilon_i \cdot tg\delta_i}{\sum_{1}^{n} \theta_i \cdot \varepsilon_i}$$





$$\theta_1 = \frac{h_1}{h_1 + h_2}; \qquad \theta_2 = \frac{h_2}{h_1 + h_2}; \qquad \theta_1 + \theta_2 = 1$$

$$\frac{1}{\varepsilon} = \frac{\theta_1}{\varepsilon_1} + \frac{\theta_2}{\varepsilon_2}; \qquad \varepsilon = \frac{\varepsilon_1 \cdot \varepsilon_2}{\theta_1 \cdot \varepsilon_2 + \theta_2 \cdot \varepsilon_1}$$

$$tg\delta = \frac{\varepsilon_1 \cdot \theta_2 \cdot tg\delta_2 + \varepsilon_2 \cdot \theta_1 \cdot tg\delta_1}{\varepsilon_1 \cdot \theta_2 + \varepsilon_2 \cdot \theta_1}$$

$$tg\delta = \varepsilon \cdot \sum_{1}^{n} \frac{\theta_i \cdot tg\delta_i}{\varepsilon_i}$$

$$\varepsilon^x = \theta_1 \cdot \varepsilon_1^x + \theta_2 \cdot \varepsilon_2^x$$

$$\frac{d(\varepsilon^x)}{dx} = \varepsilon^x \cdot \ln \varepsilon = \theta_1 \cdot \varepsilon_1^x \cdot \ln \varepsilon_1 + \theta_2 \cdot \varepsilon_2^x \cdot \ln \varepsilon_2$$

$$\ln \varepsilon = \theta_1 \cdot \ln \varepsilon_1 + \theta_2 \cdot \ln \varepsilon_2$$

$$\sum_{i=1}^{i=n} \theta_i = 1; \qquad \varepsilon^x = \sum_{i=1}^{i=n} \theta_i \cdot \varepsilon_i^x; \qquad \ln \varepsilon = \sum_{1}^{n} \theta_i \cdot \ln \varepsilon_i$$

$$\rho = \theta_1 \cdot \rho_1 + \theta_2 \cdot \rho_2$$

$$\theta_1 = \frac{\rho}{\rho_1}, \quad \ln \varepsilon = \frac{\rho}{\rho_1} \cdot \ln \varepsilon_1, \quad tg\delta = \sum_{1}^{n} \theta_i \cdot tg\delta_i$$