$$C = \frac{q}{U}$$

$$q = \sigma S$$

$$U = E \cdot d =$$

Поле плоского конденсатора:

$$E = \frac{\sigma}{\varepsilon \varepsilon_0}$$
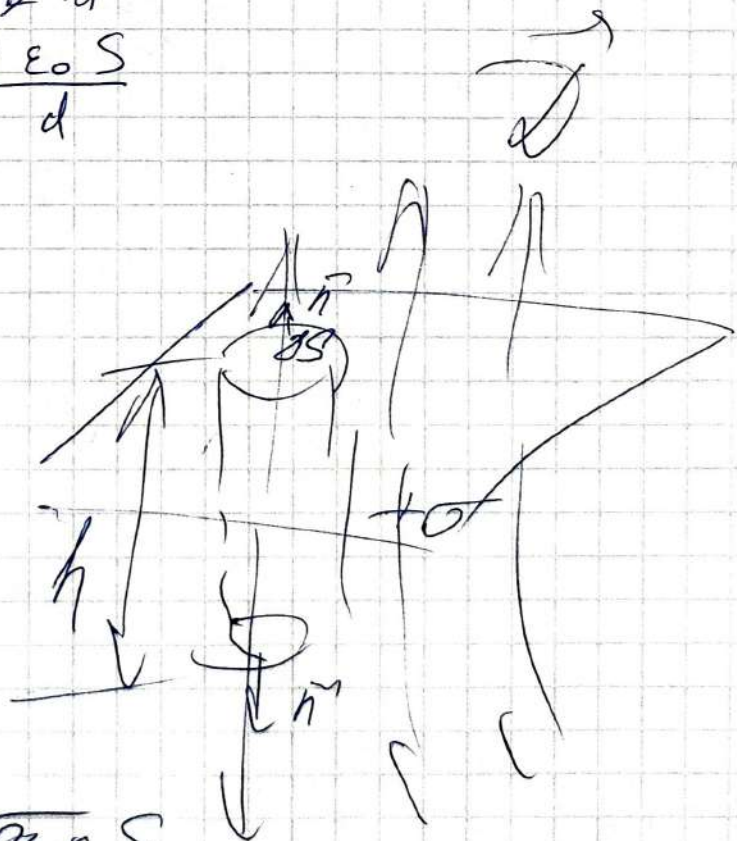
Откуда $$\sigma = \varepsilon \varepsilon_0 E$$

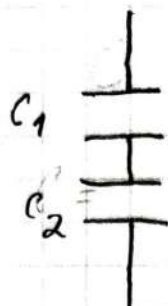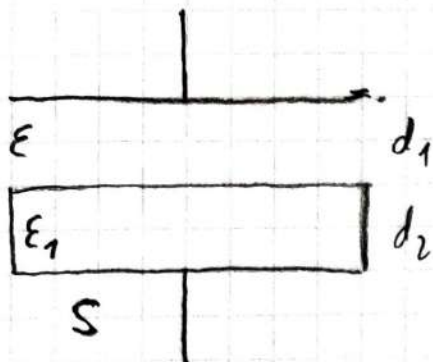$$q = \varepsilon \varepsilon_0 E \cdot S$$

Подставляем:

$$C = \frac{\varepsilon \varepsilon_0 E \cdot S}{E \cdot d}$$

$$C = \frac{\varepsilon \varepsilon_0 S}{d}$$

$$2 D \Delta S = \sigma \Delta S$$

$$D = \frac{\sigma}{2}$$

$$\frac{1}{C} = \frac{1}{C_1} + \frac{1}{C_2}$$

$$C_1 = \frac{\varepsilon \varepsilon_0 d_1}{S} \qquad C_2 = \frac{\varepsilon_1 \varepsilon_0 d_2}{S}$$

$$\frac{1}{C} = \frac{S}{\varepsilon \varepsilon_0 d_1} + \frac{S}{\varepsilon_1 \varepsilon_0 d_2}$$

$$\frac{1}{C} = \frac{S}{\varepsilon_0} \left(\frac{1}{\varepsilon d_1} + \frac{1}{\varepsilon_1 d_2} \right)$$

$$\frac{1}{C} = \frac{S}{\varepsilon_0} \left(\frac{\varepsilon_1 d_2 + \varepsilon d_1}{\varepsilon \varepsilon_1 d_1 d_2} \right)$$

$$\frac{1}{C} = \frac{S(\varepsilon_1 d_2 + \varepsilon d_1)}{\varepsilon_0 \varepsilon \varepsilon_1 d_1 d_2}$$

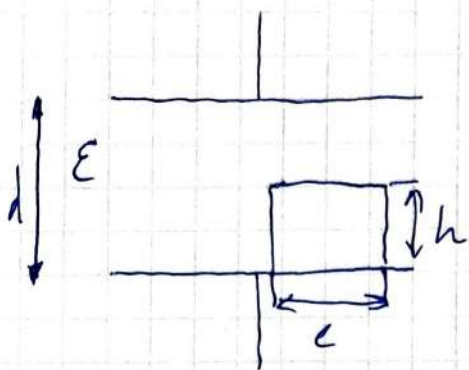$$C = \frac{\varepsilon_0 \varepsilon \varepsilon_1 d_1 d_2}{S(\varepsilon_1 d_2 + \varepsilon d_1)}$$

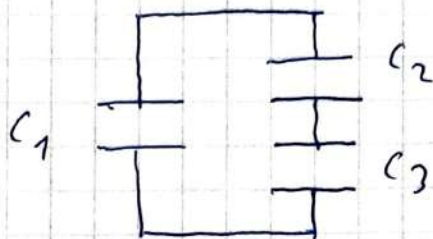$$C_1 = \frac{\varepsilon \varepsilon_0 S_1}{d} \qquad S_1 =$$

Маслова Марина Э101 - защита

Эквивалентная схема:

$$C = C_1 + C_{23}$$

$$\frac{1}{C_{23}} = \frac{1}{C_2} + \frac{1}{C_3}$$