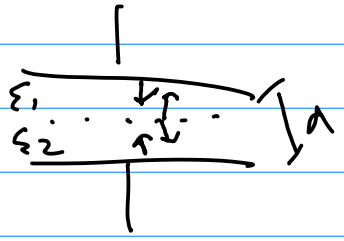


$$C = \frac{\varepsilon_1 \varepsilon_2 S}{x_1 \varepsilon_2 + x_2 \varepsilon_1} \qquad x_1 + x_2 = d$$

$$W = \frac{1}{2} U^2 C$$

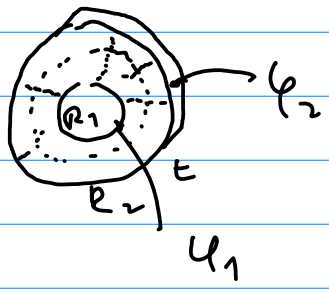
$$-F_1 = \frac{\partial W}{\partial x_1} = \frac{1}{2} U^2 \varepsilon_1 \varepsilon_2 S \cdot \frac{-\varepsilon_2}{(x_1 \varepsilon_2 + x_2 \varepsilon_1)^2}$$

$$-F_2 = \frac{\partial W}{\partial x_2} \quad \text{— " —} \quad \frac{-\varepsilon_1}{(\quad)^2}$$

$$-F_R = \frac{\partial W}{\partial x_1}\Big|_{x_1 + x_2 = d} = \frac{1}{2} U^2 \varepsilon_1 \varepsilon_2 S \cdot \frac{\partial}{\partial x_1} \frac{1}{x_1 \varepsilon_2 + (d - x_1)\varepsilon_1}$$

$$= \frac{1}{2} U^2 \varepsilon_1 \varepsilon_2 S \cdot \frac{-\varepsilon_2 + \varepsilon_1}{(\quad)^2}$$

2.1.10



$R = ?$ $\quad \vec{i} = \sigma \vec{E}$

σ

$$\nabla \cdot \vec{i} = \sigma \nabla \cdot \vec{E} = \sigma \Delta \varphi = 0$$

ANALOGIE ! $\quad E = \frac{1}{4\pi\varepsilon_0} \frac{\lambda}{r}$

$$\varphi \sim \ln r$$

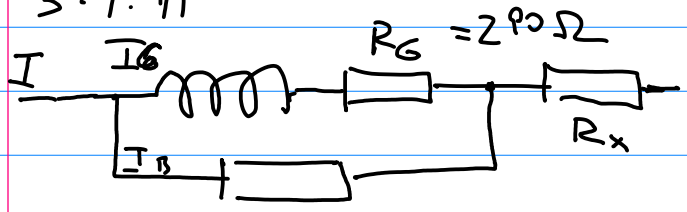
$$U = \varphi_2 - \varphi_1 = R \cdot \ln \frac{R_2}{R_1}$$

$$\vec{i} = \sigma \nabla \varphi = \sigma R \cdot \frac{1}{r}$$

$$I = \int_S \vec{i} \, d\vec{S} = 2\pi x \cdot t \cdot \sigma R \cdot \frac{1}{x}$$

$$R = \frac{U}{I} = \frac{\rho \cdot \ln \frac{R_2}{R_1}}{2\pi t \sigma}$$

5.1.11



10× SNÍŽÍ CITLIVOST

$$I_G = \frac{I}{10}$$

$$\frac{I_G}{I_B} = \frac{R_B}{R_G}$$

$$I_G + I_B = I$$

$$R_B = \frac{I_G}{I_B} \cdot R_G$$

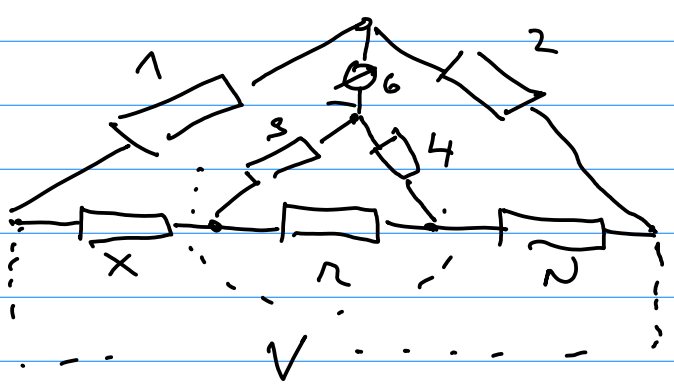
$$= \frac{0.1\,I}{I - 0.1I} \cdot R_G = \frac{0.1}{0.9} R_G = \frac{1}{9} R_G$$

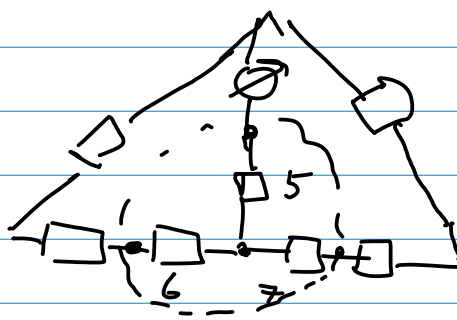
$$\frac{1}{\frac{1}{R_B} + \frac{1}{R_G}} + R_x = R_G$$

$$\frac{1}{\frac{9}{R_G} + \frac{1}{R_G}} + R_x = R_G$$

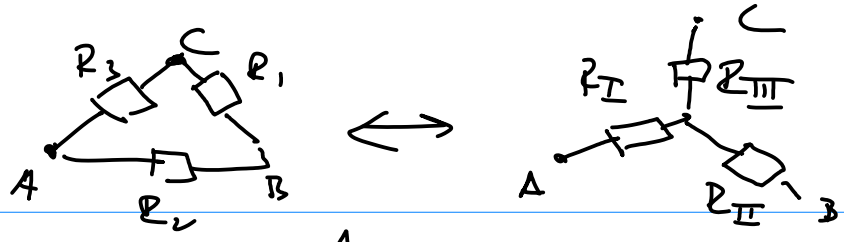
$$-\frac{R_G}{10} + R_G = R_x = \frac{9}{10} R_G$$

5.1.33 THOMSONŮV MŮSTEK





a)



$$R_{AC} = \frac{1}{\frac{1}{R_3} + \frac{1}{R_2 + R_1}}$$

$$R_{AC} = R_I + R_{III}$$

$$\frac{R_3 R_2 + R_3 R_1}{R_1 + R_2 + R_3} = R_I + R_{III}$$

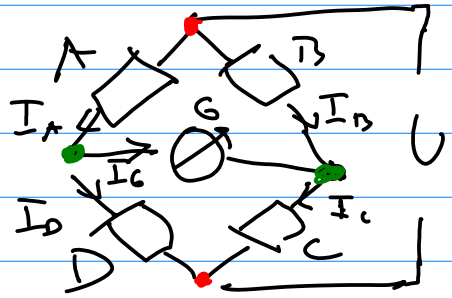
$$R_I = \frac{R_2 R_3}{R_1 + R_2 + R_3}$$

$$R_5 = \frac{R_3 R_4}{R_3 + R_4 + \Lambda}$$

$$R_6 = \frac{R_3 \cdot \Lambda}{\Sigma}$$

$$R_7 = \frac{R_4 \cdot \Lambda}{\Sigma}$$

b) WHEATSTONEŮV M.



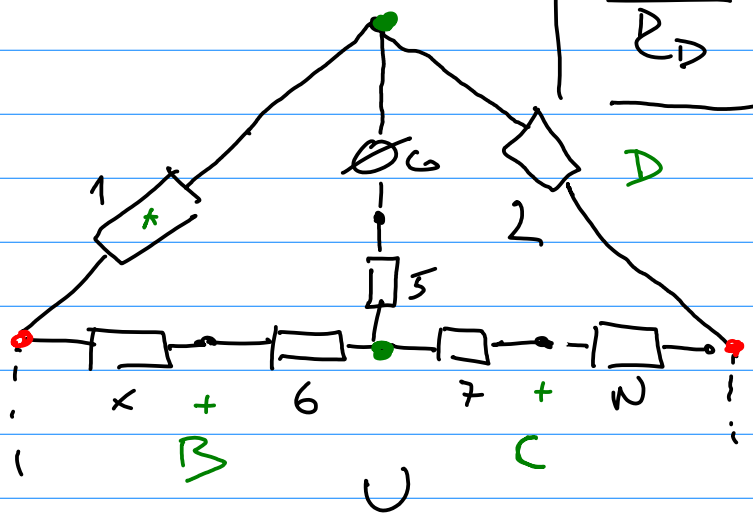
$$I_G = 0$$

$$I_A = I_D \qquad I_B = I_C$$

$$I_D \cdot R_D = I_C \cdot R_C$$

$$I_A \cdot R_A = I_B \cdot R_B$$

$$\boxed{\frac{R_A}{R_D} = \frac{R_B}{R_C}}$$



$$\frac{R_1}{R_2} = \frac{R_x + R_6}{R_7 + R_N}$$

$$\frac{R_1}{R_2} = \frac{R_x + \dfrac{R_3 r}{R_3 + R_4 + r}}{R_N + \dfrac{R_4 r}{R_3 + R_4 + r}}$$

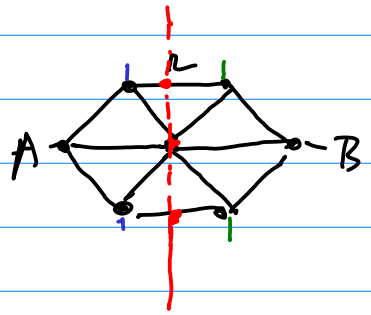
b) $r \to 0$

$$\frac{R_1}{R_2} = \frac{R_x}{R_N} \qquad R_x = \frac{R_1}{R_2} \cdot R_N$$

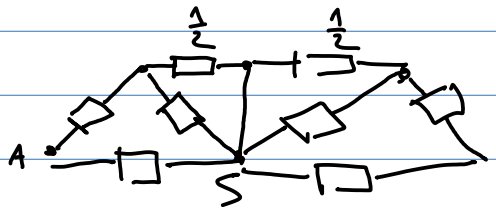
c) $R_1 = kR_3 \qquad R_2 = kR_4$

$$\frac{R_3}{R_4} = \ldots \qquad R_x = \frac{R_1}{R_2} \cdot R_N$$

5.1.4



$R_{AB} = ?$



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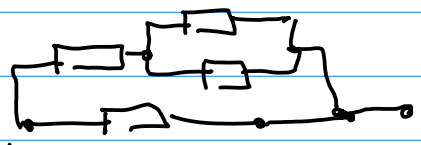
DÚ

KLITELNĚ:

5.1.6



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B

. . . —11—