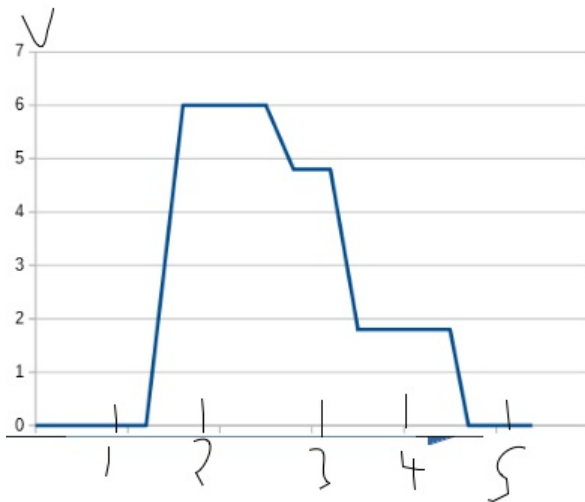
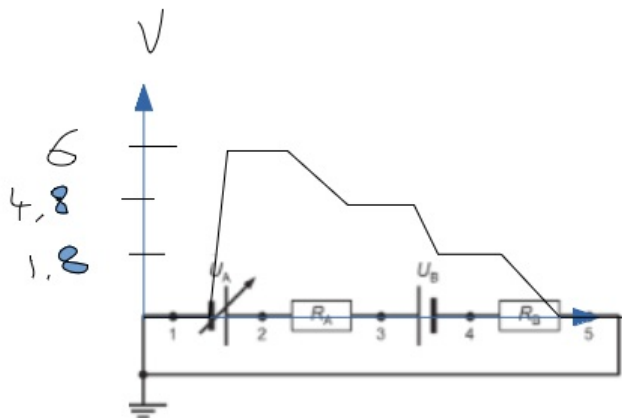


Sivu 2.9. klo 13:09

K18-7



Kil lain mukaan:

$$\Delta V = 0$$

$$U_A - R_A \cdot I - U_B - R_B \cdot I = 0$$

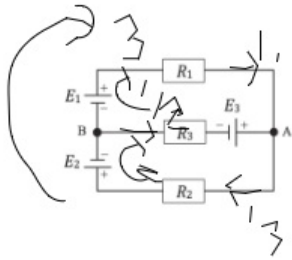
$$I = \frac{U_A - U_B}{R_A + R_B} = \frac{6,0 \text{ V} - 3,0 \text{ V}}{220 \Omega + 330 \Omega} =$$

$$= 0,00545454545... \text{ A}$$

$$R_A \cdot I = 1,2 \text{ V}$$

$$R_B \cdot I = 1,8 \text{ V}$$

S14-7



ovat  $E_1 = 6,0 \text{ V}$ ,  $E_2 = 12 \text{ V}$  ja  $E_3 = 8,0 \text{ V}$ .  
resistanssit ovat hyvin pieniä. Vastuste  
 $R_1 = 2,0 \Omega$ ,  $R_2 = 4,0 \Omega$  ja  $R_3 = 3,0 \Omega$ .

Kll lain mukaan:  $\Delta V = 0$

$$E_1 - R_1 I_1 - E_3 + R_3 I_2 = 0$$

$$R_3 \cdot I_2 + E_3 - R_2 I_3 - E_2 = 0$$

Kl lain mukaan, pisteessä A:

$$I_1 + I_2 = I_3$$

$$\left\{ \left\{ I_1 = \frac{E_1 - E_3 + R_3 I_2}{R_1}, I_2 = \frac{-E_1 R_2 - E_2 R_1 + E_3 R_1 + E_3 R_2 - R_2 R_3 I_3}{R_1 R_2 - R_1 R_3}, I_3 = \frac{-E_1 R_3 - E_2 R_1 + E_3 R_1 + E_3 R_3 - R_3 R_3 I_2}{R_1 R_2 - R_1 R_3} \right\} \right\}$$

$$\{E_1 - R_1 I_1 - E_3 + R_3 I_2 = 0, R_3 I_2 + E_3 - R_2 I_3 - E_2 = 0, I_1 + I_2 = I_3\}$$

$$\rightarrow \{-2 I_1 + 3 I_2 - 2 = 0, 3 I_2 - 4 I_3 - 4 = 0, I_1 + I_2 = I_3\}$$

$$\text{Ratkaise } (\{E_1 - R_1 I_1 - E_3 + R_3 I_2 = 0, R_3 I_2 + E_3 - R_2 I_3 - E_2 = 0, I_1 + I_2 = I_3\}, \{I_1, I_2, I_3\})$$

$$\rightarrow \{I_1 = -1, I_2 = 0, I_3 = -1\}$$

Vastaus:

$$I_1 = 1 \text{ A} \quad \text{valittua suuntaa vastaan}$$

$$I_2 = 0 \text{ A}$$

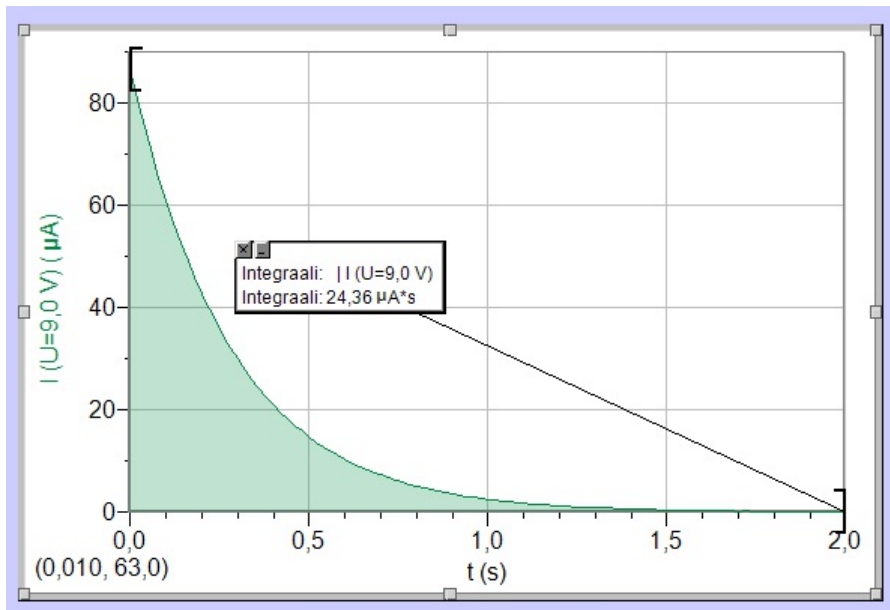
$$I_3 = 1 \text{ A} \quad \text{valittua suuntaa vastaan.}$$

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K19-3.

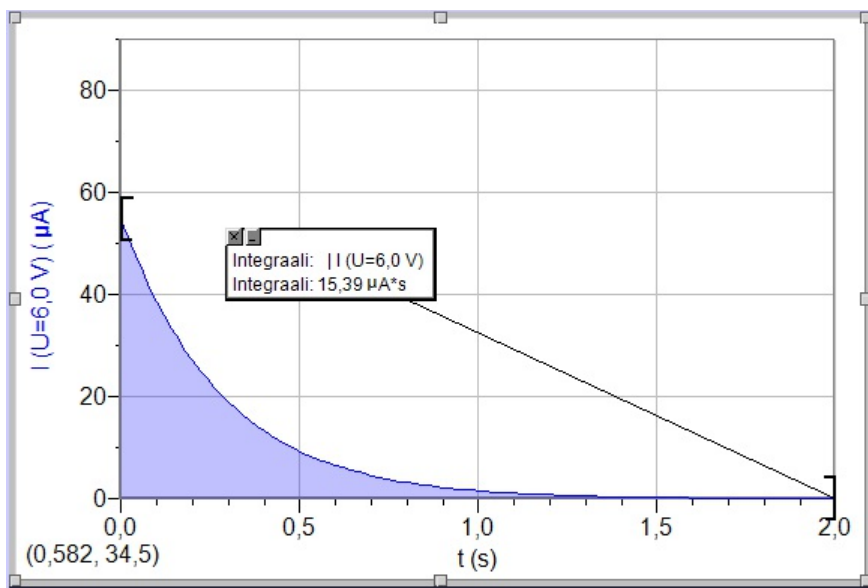
$$A = \frac{Q}{\Delta t} \Rightarrow Q = A \Delta t$$

$$C = \frac{Q}{U} = \frac{A \Delta t}{U}$$

Kapasitanssi on siis kuvaajan alle jäävä fysikaalinen pinta-ala jaettuna jännitteellä:



$$C = \frac{24,36 \cdot 10^{-6} \text{ As}}{9,0 \text{ V}}$$



jne.