

קצת

1 סעיף

3 סעיף

$E_{12} = 3V$
 $E_{12} = E_1 - E_2$
 $E_{12} = 3V$

$R_6 = 1.5\Omega$

גודל רמת הריק

$I_{12} = \frac{E_{12}}{R_6} = \frac{3}{1.5}$

$I_{12} = 2A$

2 סעיף

$R_2 = 2\Omega$

$I_2 = \frac{E_2}{R_2} = \frac{10}{2}$

$I_2 = 5A$

1 סעיף

$I_1 = 8A$

$I_1 = \frac{E_1}{R_1} = \frac{24}{3}$

$I_1 = 8A$

5 סעיף

$R_{123} = R_1 + R_2 + R_3 = 6\Omega$

$E_{123} = E_1 - E_2 + E_3$

$E_{123} = 30V$

$I_{123} = \frac{E_{123}}{R_{123}}$

$I_{123} = 5A$

4 סעיף

$E_{12} = E_1 - E_2$

$E_{12} = 10V$

$R_7 = 4\Omega$

$I_{12} = \frac{E_{12}}{R_7}$

$I_{12} = 2.5A$

$I_{56} =$

$R_{1-4} = 2.25\Omega$

$I_{56} = \frac{E_{56}}{R_{1-4}} = 20A$

$I_{56} = 20A$

E_{56}

$R_{1-4} = R_1 \parallel R_{34}$

$R_{1-4} = 2.25\Omega$

6 סעיף

$E_{56} = 45V$

$R_{12} = 3\Omega$

$R_{34} = 9\Omega$

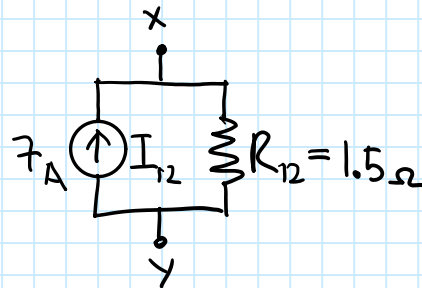
$R_{12} = R_1 + R_2 = 3\Omega$

$R_{34} = R_3 + R_4 = 9\Omega$

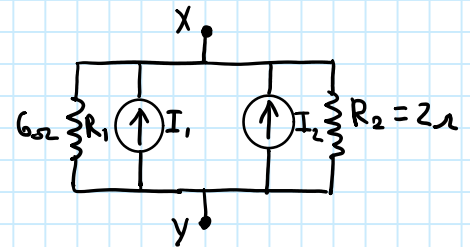
$E_{56} = E_5 + E_6 = 45V$

$$I_{12} = I_1 + I_2 = 7A$$

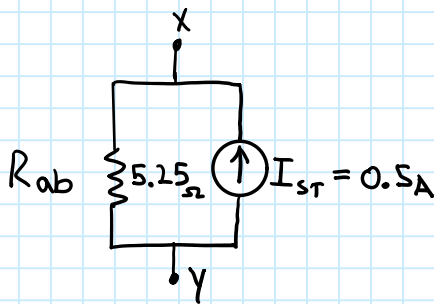
$$R_{12} = R_1 || R_2 = 1.5 \Omega$$



7 סיוג

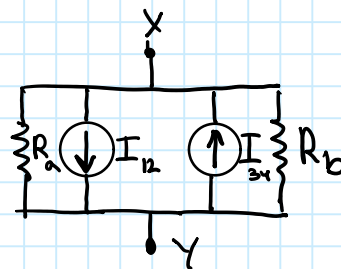


$$I_1 = \frac{E_1}{R_1} = 2A, I_2 = \frac{E_2}{R_2} = 5A$$



$$R_{ab} = R_a || R_b = 5.25 \Omega$$

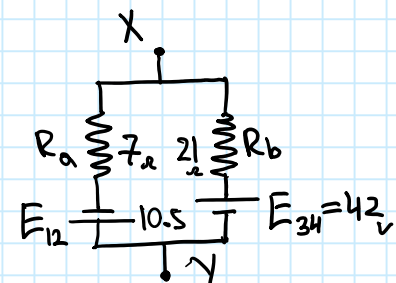
$$I_{sT} = I_{34} - I_{12} = 0.5A$$



$$I_{12} = \frac{E_{12}}{R_a} = 1.5A$$

$$I_{34} = \frac{E_{34}}{R_b} = 2A$$

8 סיוג



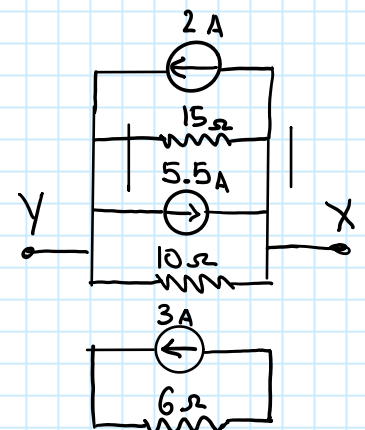
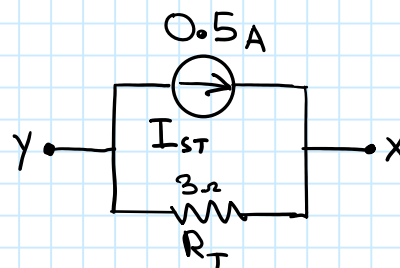
$$E_{12} = E_2 - E_1 = 10.5V$$

$$E_{34} = E_3 - E_1 = 42V$$

9 סיוג

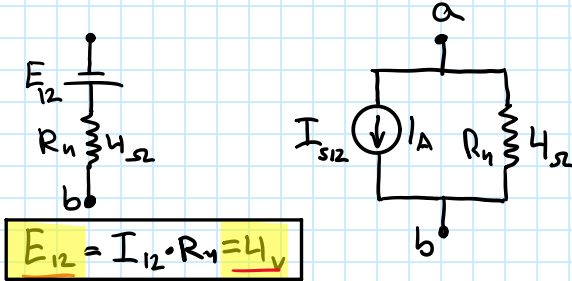
$$I_{sT} = 5.5 - 2 - 3 = 0.5A$$

$$R_T = 1 || 1 || 6 = 3 \Omega$$

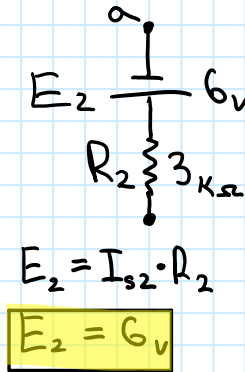


התקנה

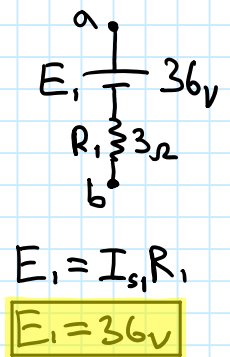
3 סדרה



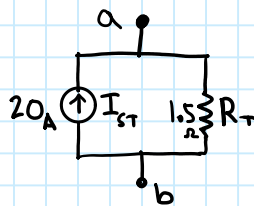
2 סדרה



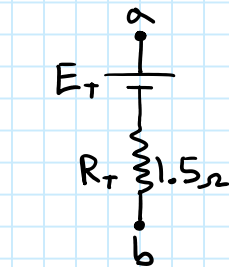
1 סדרה



6 סדרה



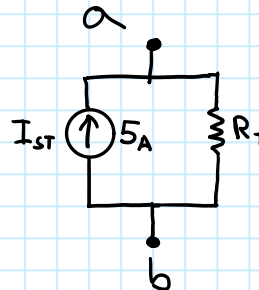
$R_T = R_1 \parallel R_2 = 1.5 \Omega$
 $I_{ST} = I_1 + I_2 = 20A$



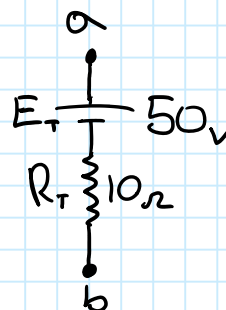
$E_T = I_{ST} \cdot R_T$

$E_T = 30V$

5 סדרה



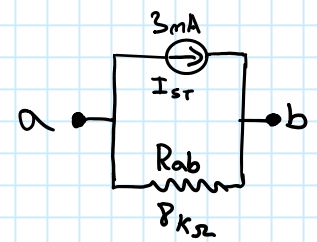
$R_T = 1.6 + 14 \parallel 21$
 $R_T = 10 \Omega$



$E_T = I_{ST} \cdot R_T$

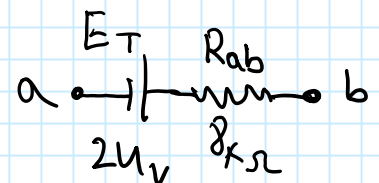
$E_T = 50V$

4 סדרה



$I_{ST} = I_{s2} + I_{s3} - I_{s1} = 3mA$

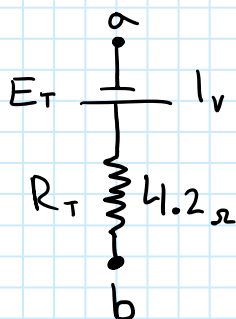
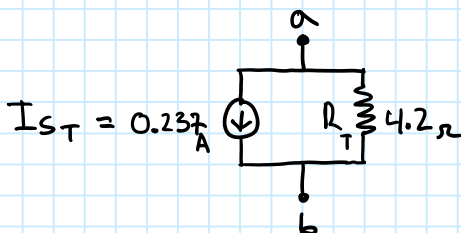
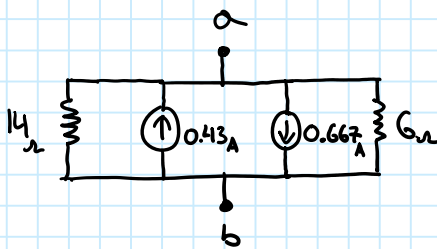
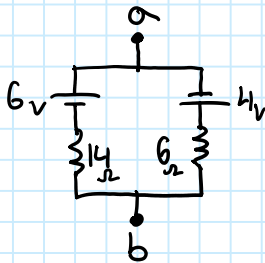
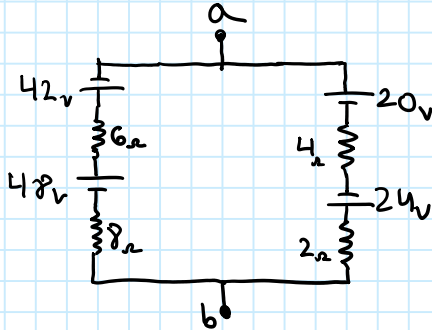
$R_{ab} = R_a + R_b = 8k \Omega$



$E_T = I_{ST} \cdot R_{ab}$

$E_T = 24V$

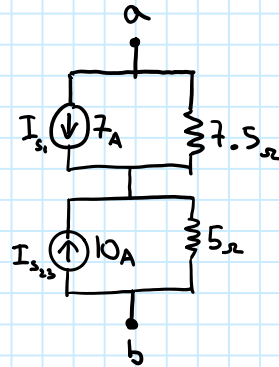
9 סיזגא



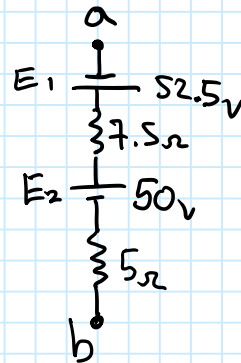
$$E_T = I_{ST} R_T$$

$$E_T = 1V$$

8 סיזגא

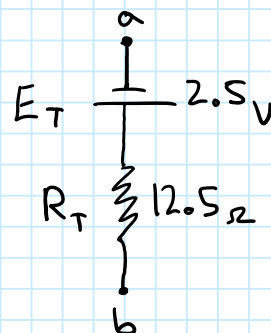


$$I_{S_{23}} = I_{S_2} - I_{S_3} = 10A$$



$$E_1 = I_{S_1} R_1 = 52.5V$$

$$E_2 = I_{S_2} R_2 = 50V$$

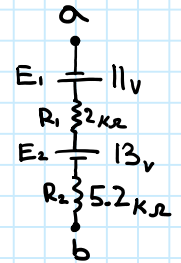


$$R_T = R_1 + R_2 = 12.5\Omega$$

$$E_T = E_1 - E_2 = 2.5V$$

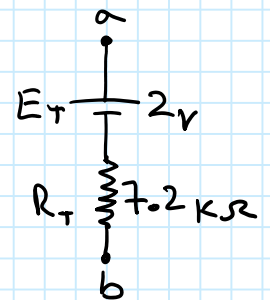
$$E_T = 2.5V$$

7 סיזגא



$$E_1 = I_{S_1} R_1 = 11V$$

$$E_2 = I_{S_2} R_2 = 13V$$

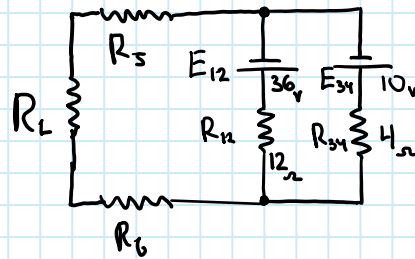


$$R_T = R_1 + R_2 = 7.2k\Omega$$

$$E_T = E_2 - E_1 = 2V$$

עבודה

$I_{R_L} = ?$ (ק) 1

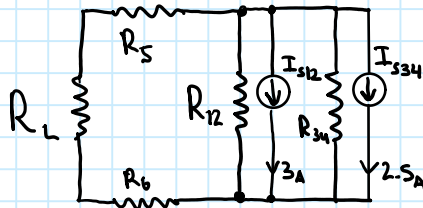


$$R_{12} = R_1 + R_2 = 12\Omega$$

$$R_{34} = R_3 + R_4 = 4\Omega$$

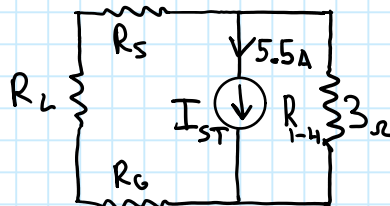
$$E_{12} = E_1 + E_2 = 36V$$

$$E_{34} = E_4 - E_3 = 10V$$



$$I_{12} = \frac{E_{12}}{R_{12}} = 3A$$

$$I_{34} = \frac{E_{34}}{R_{34}} = 2.5A$$



$$R_{1-4} = R_{12} \parallel R_{34} = 3\Omega$$

$$I_{ST} = I_{12} + I_{34} = 5.5A$$

$$R_{56L} = R_5 + R_6 + R_L$$

$$R_{56L} = 3.6\Omega$$

$$I_{R_L} = I_{ST} \cdot \frac{\frac{1}{R_{56L}}}{\frac{1}{R_{56L}} + \frac{1}{R_{1-4}}} = 5.5 \cdot \frac{\frac{1}{3.6}}{\frac{1}{3.6} + \frac{1}{3}} = \underline{2.5A}$$

$I_{R_L} = 2.5A$

$$P_{R_L} = I_{R_L}^2 \cdot R_L = 2.5^2 \cdot 2.6\Omega = \underline{16.25W}$$

$P_{R_L} = 16.25W$

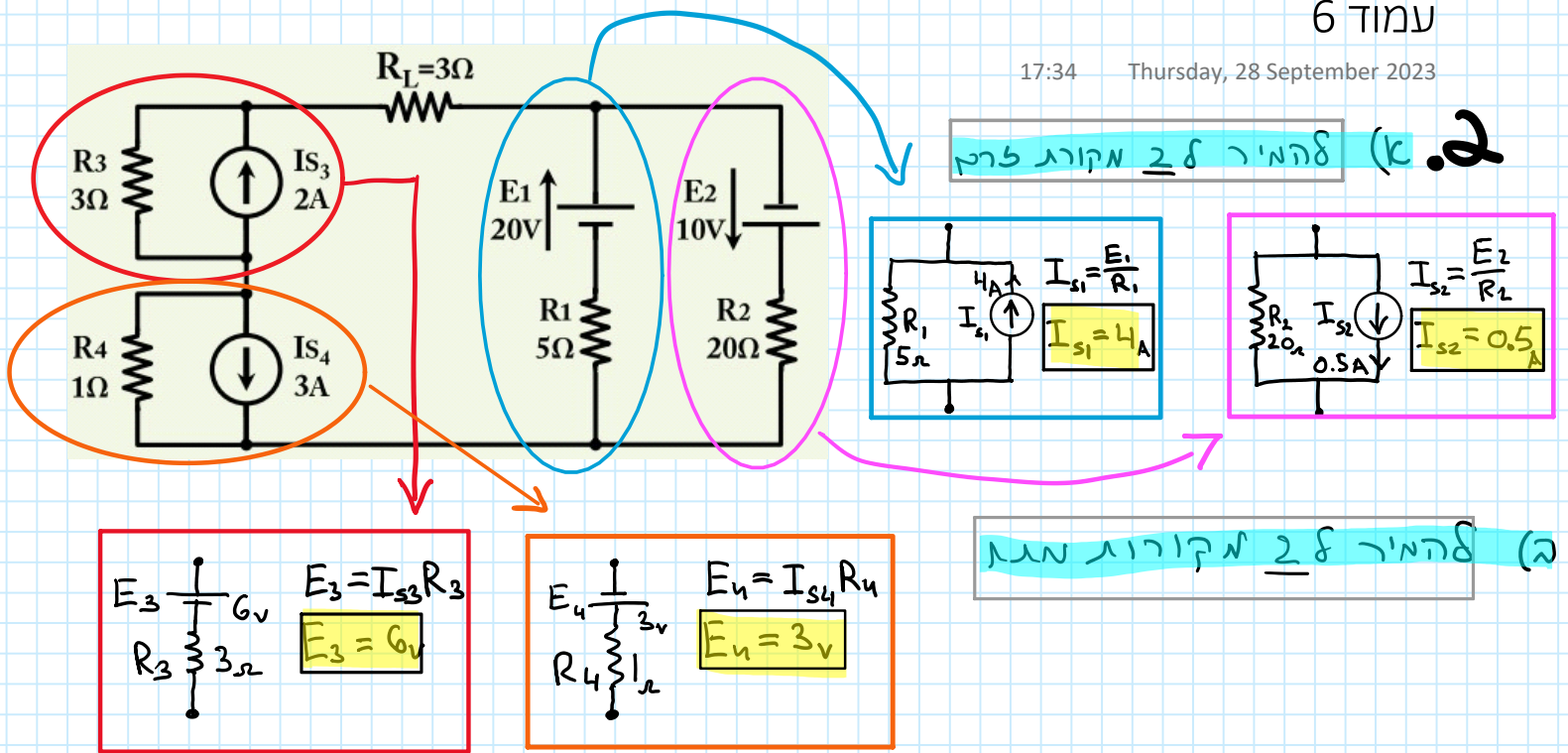
$P_{R_L} = ?$ (ו)

$$I_{R_L} = \frac{\Delta Q}{\Delta t}$$

$$\Delta Q = I_{R_L} \cdot \Delta t = 2.5A \cdot 5400s = \underline{13500C}$$

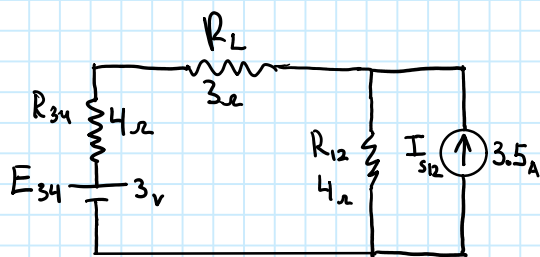
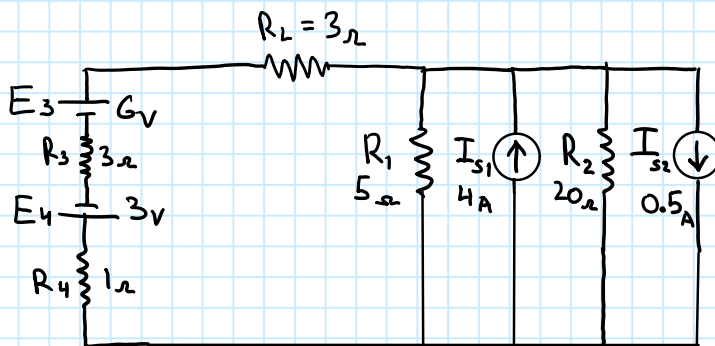
$\Delta t = 5400s \leftarrow$ $\Delta t = 1.5h$ $\Delta Q = ?$ (ז)

$\Delta Q = 13,500C$



2. סדרה של מקור זרם

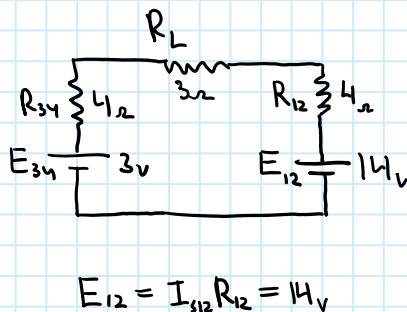
2. סדרה של מקור מתח



$$R_{12} = R_1 \parallel R_2 = 4\Omega, \quad I_{S12} = I_{S1} - I_{S2} = 3.5A$$

$$R_{34} = R_3 + R_4 = 4\Omega, \quad E_{34} = E_3 - E_4 = 3V$$

$$I_{R_L} = ?$$



$$E_T = E_{12} - E_{34} = 11V$$

$$R_T = R_L + R_{12} + R_{34} = 11\Omega$$

$$I_{R_L} = I_T = \frac{E_T}{R_T} = 1A$$

$$I_{R_L} = 1A$$