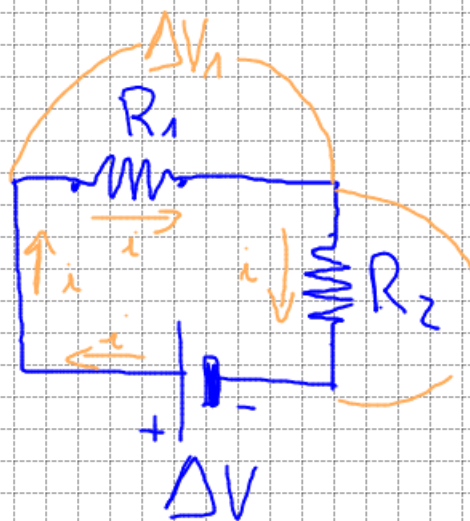


RESISTORI IN SERIE E PARALLELO

SERIE

$$\Delta V = R_i i$$

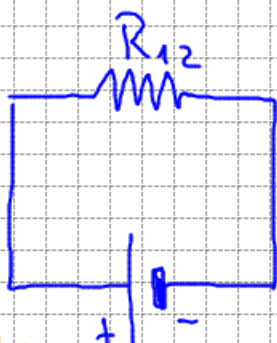


$$\Delta V - \Delta V_1 - \Delta V_2 = 0$$

$$\Delta V = \Delta V_1 + \Delta V_2$$

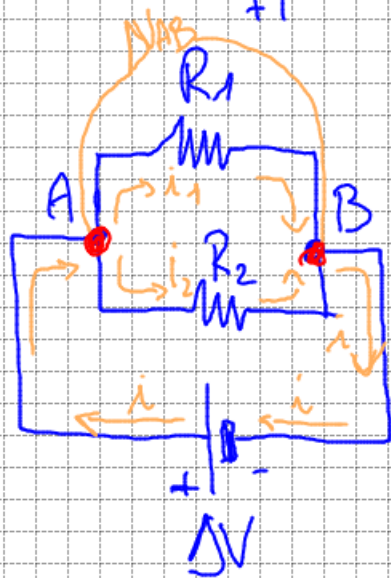
$$R_{eq} i = R_1 i + R_2 i$$

$$R_{eq} = R_1 + R_2$$



PARALLELO

$$\Delta V = \Delta V_{AB}$$



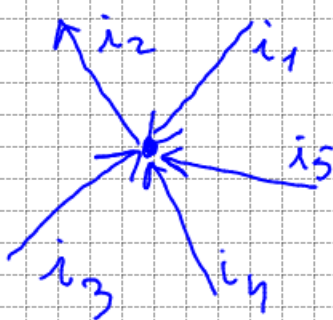
$$i = i_1 + i_2$$

$$\frac{\Delta V}{R_{eq}} = \frac{\Delta V}{R_1} + \frac{\Delta V}{R_2}$$

$$\frac{1}{R_{eq}} = \frac{1}{R_1} + \frac{1}{R_2}$$

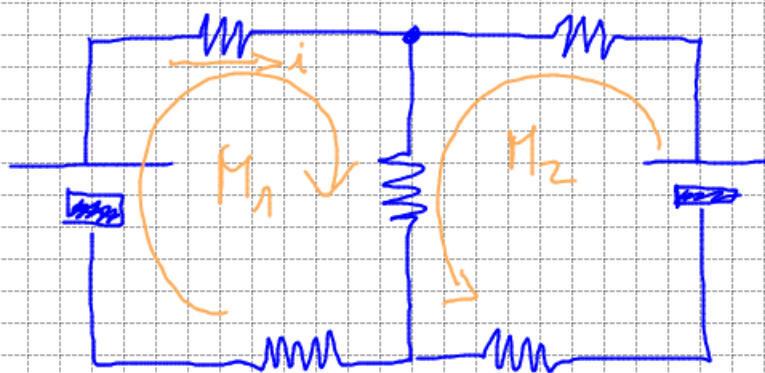
KIRCHHOFF

NODI: Un nodo è un punto del circuito elettrico in cui la somma algebrica delle correnti è zero. Un nodo è formato di 3 o più fili elettrici.

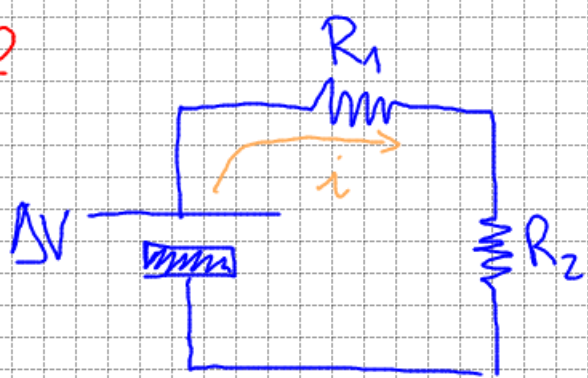


$$i_1 - i_2 + i_3 + i_4 + i_5 = 0$$

MAGLIE



ESEMPIO



$$R_1 = 10 \Omega$$

$$R_2 = 20 \Omega$$

$$\Delta V = 4,5 V$$

$$R_{eq} = R_1 + R_2$$

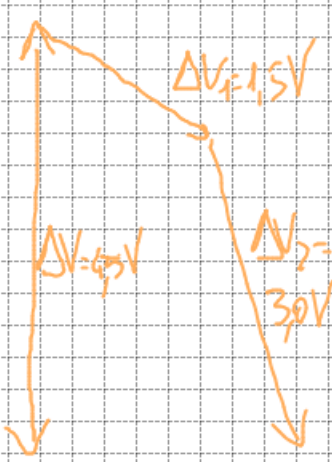
$$R_{eq} = 30 \Omega$$

$$\Delta V = R_{eq} i \quad i = \frac{\Delta V}{R_{eq}}$$

$$i = \frac{4,5 V}{30 \Omega} = 0,15 A$$

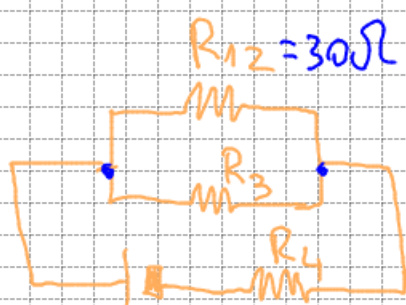
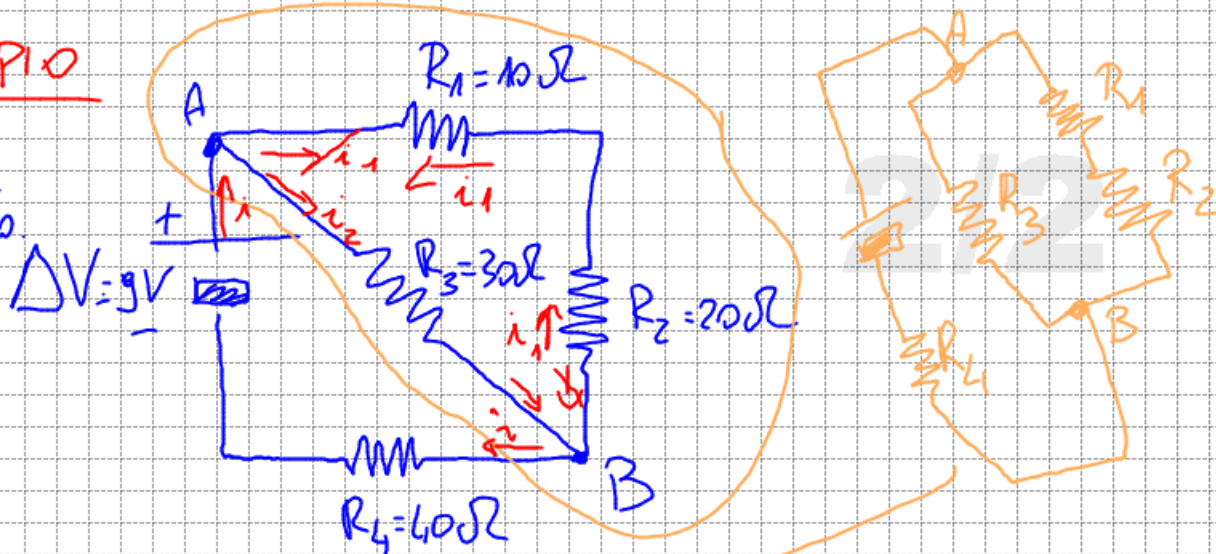
$$\Delta V_1 = R_1 i = 10 \Omega \times 0,15 A = 1,5 V$$

$$\Delta V_2 = R_2 i = 20 \Omega \times 0,15 A = 3,0 V$$

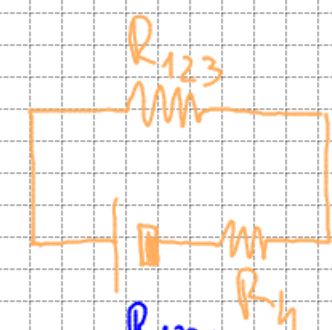


ESEMPIO

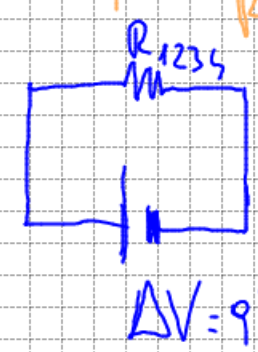
Risolvere il seguente circuito



$$R_{12} = R_1 + R_2 = 30\Omega$$



$$\frac{1}{R_{123}} = \frac{1}{R_{12}} + \frac{1}{R_3} \quad R_{123} = 15\Omega$$



$$R_{1234} = R_{123} + R_4 = 55\Omega$$

$$\Delta V = R_{eq} i \quad i = \frac{\Delta V}{R_{eq}} \quad i = \frac{9V}{55\Omega} = 0,16A$$

$$\Delta V = R_3 i_2 \quad i_2 = \frac{\Delta V}{R_3} \quad i_2 = \frac{9V}{30\Omega} = 0,3A$$

$$i = i_1 + i_2 \quad i_1 = i - i_2 \quad i_1 = (0,16 - 0,3)A \quad i_1 = -0,14A$$