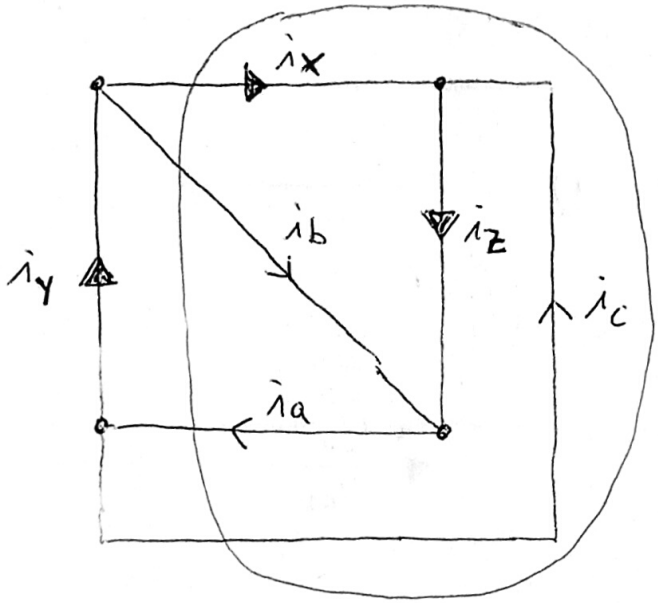
NOME

1) DETERMINARE i_x, i_y E i_z $\left(i_a = 3A,\ i_b = 1A,\ i_c = -2A\right)$

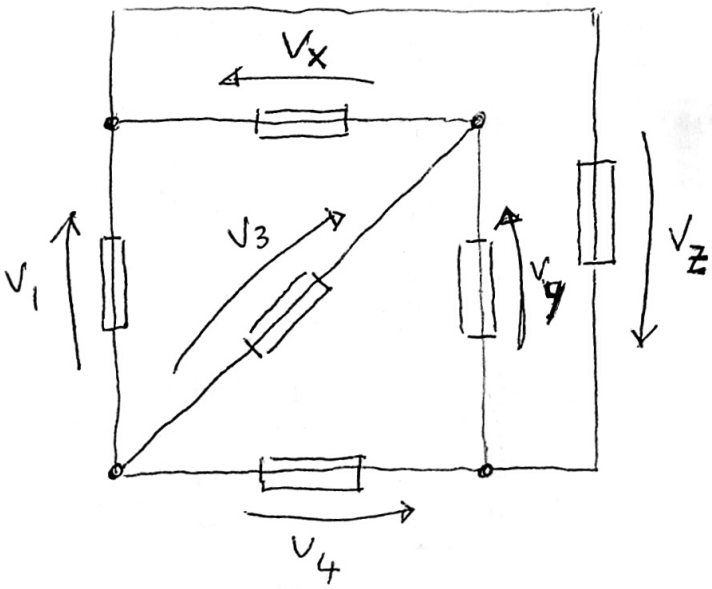


$i_y = i_a - i_c = 3 - (-2) = 5A$

$i_z = i_a - i_b = 3 - 1 = 2A$

$i_x = i_a - i_b - i_c = 3 - 1 - (-2) = 4A$

2) DETERMINARE V_x, V_y, E V_z $\left(V_1 = 4V,\ V_3 = -2V,\ V_4 = 7V\right)$



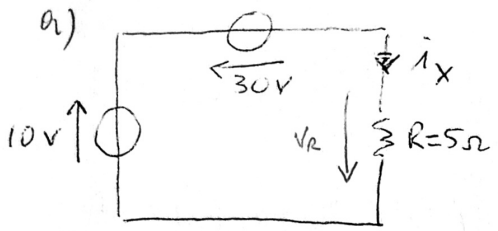
$V_x = V_1 - V_3 = 4 - (-2) = 6V$

$V_y = V_3 - V_4 = -2 - 7 = -9V$

$V_z = V_4 - V_1 = 7 - 4 = 3V$

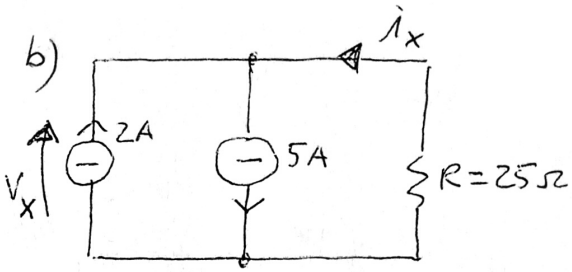
3) DETERMINARE LE GRANDEZZE INCOGNITE

a)



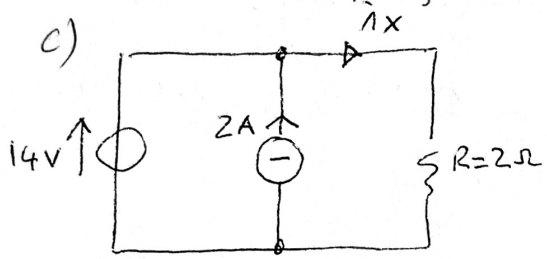
$V_R = 30 - 10 = 20V$ $\quad i_x = -\frac{V_R}{R} = -\frac{20}{5} = -4A$

b)



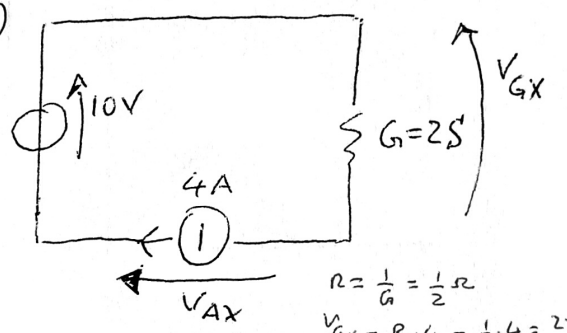
$i_x = 5 - 2 = 3A$ $\quad V_x = -R i_x = -25 \cdot 3 = -75V$

c)



$i_x = \frac{14V}{2\Omega} = 7A$

d)



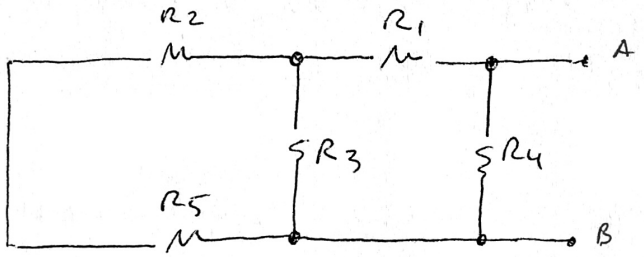
$R = \frac{1}{G} = \frac{1}{2}\Omega$

$V_{GX} = R \cdot 4 = \frac{1}{2} \cdot 4 = 2V$

$V_{AX} = V_{GX} - 10 = 2 - 10 = -8V$

4) DETERMINARE LE RESISTENZE EQUIVALENTI AI MORSETTI A B

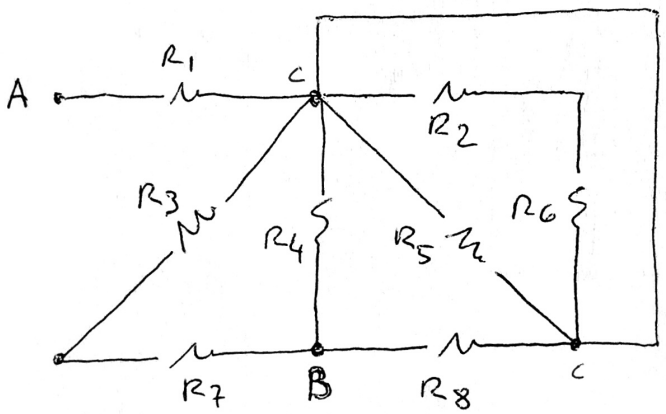
a)



$R_1 = 3\Omega$
$R_2 = 20\Omega$
$R_3 = 20\Omega$
$R_4 = 10\Omega$
$R_5 = 10\Omega$

$R_{25} = R_2 + R_5 = 20 + 10 = 30\Omega$ $\quad R_p = R_3 // R_{25} = \frac{20 \cdot 30}{20+30} = 12\Omega$ $\quad R_s = R_p + R_1 = 12 + 3 = 15\Omega$ $\quad R_{AB} = R_s // R_4 = \frac{15 \cdot 10}{25} = 6\Omega$

b)



$R_1 = 5\Omega$
$R_2 = 10\Omega$
$R_3 = 8\Omega$
$R_4 = 18\Omega$
$R_5 = 18\Omega$
$R_6 = 8\Omega$
$R_7 = 18\Omega$
$R_8 = 18\Omega$

$R_{37} = R_3 + R_7 = 18\Omega$

$R_{CB} = R_{37} // R_4 // R_8 = 18 // 18 // 18 = \frac{18}{3} = 6\Omega$