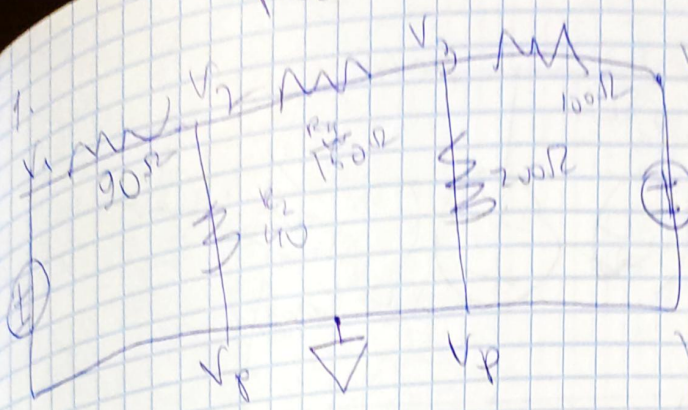
Posb-Lab

1.



$V_4 = 10V$

$V_1 = 5V$

$V_2 - V_1$

$\frac{V_1 - V_2}{90} = \frac{V_2 - V_3}{150} + \frac{V_2}{40}$

$\frac{5 - V_2}{90} = \frac{V_2 - V_3}{150} + \frac{V_2}{40}$

$\frac{10 - V_3}{100} + \frac{V_2 - V_3}{150} = \frac{V_3}{200}$

$\frac{5 - V_2}{90} - \frac{V_2}{40} = \frac{10 - V_3}{100} + \frac{V_3}{200}$

$\frac{20 - 4V_2 - 9V_2}{360} = \frac{-20 + 2V_3 + V_3}{200}$

$18(20 + 3V_3) = 10(20 - 13V_2)$

$-180 + 27V_3 = 100 - 65V_2$

$65V_2 + 27V_3 = 280$

$6,5V_2 + 2,7V_3 = 28$

$\frac{10 - V_3}{10} + \frac{V_2 - V_3}{15} = \frac{V_3}{20}$

$30 - 3V_3 + 2V_2 - 2V_3 = 1,5V_3$

$6,5V_3 - 2V_2 = 30$

$6,5V_3 - \frac{28 - 2,7V_3}{3,25} = 30$

$21,125V_3 + 2,7V_3 = 97,5$

$18,425V_3 = 97,5$

$V_3 = 5,2675$

$I_3 = \frac{5,2675}{200} = 0,026A$

$I_2 = 0,021A$

$V_2 = 2,12V$

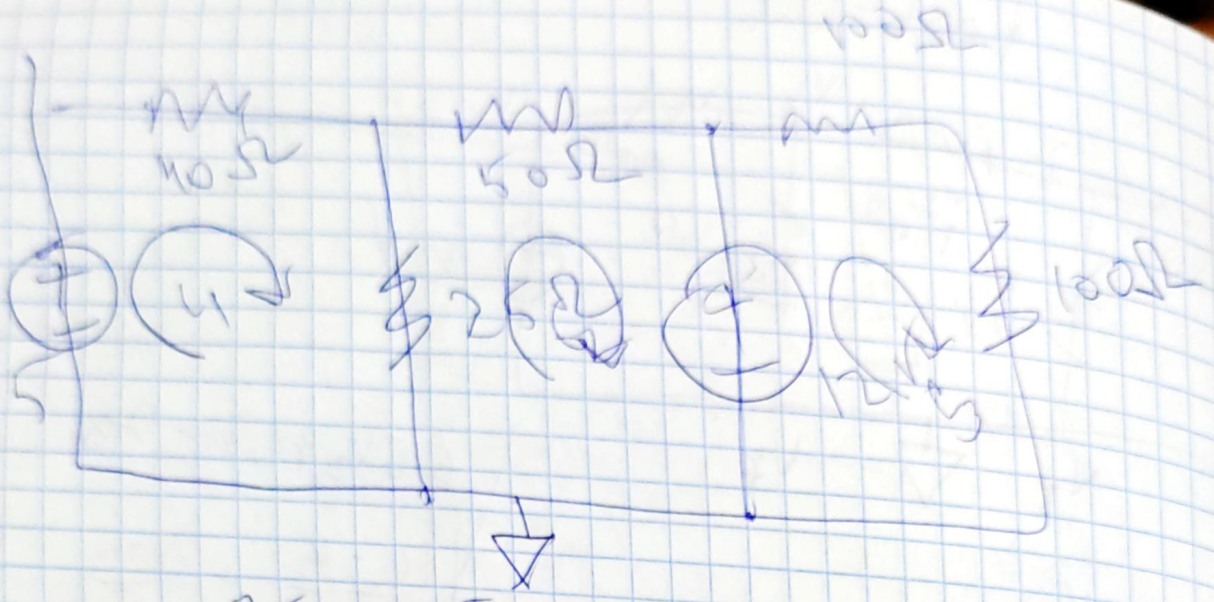
$I_1 = \frac{5 - 2,12}{90} = 0,032A$

$I_4 = \frac{10 - V_3}{100} = \frac{10 - 5,2675}{100}$

$0,047A$

$I_5 = 0,053A$

2



$$40I_1 + 25I_1 - 25I_2 - 5 = 0$$

$$25I_2 - 25I_1 + 50I_2 + 12 = 0$$

$$100I_3 + 100I_3 - 12 = 0$$

$$I_3 = 0{,}06\ A$$

$$65I_1 - 25I_2 = 5$$

$$75I_2 - 25I_1 = -12$$

$$170I_1 = 3$$

$$I_1 = 0{,}0176\ A$$

$$I_2 = -0{,}155\ A$$

$$I_1 - I_2 = 0{,}172\ A$$