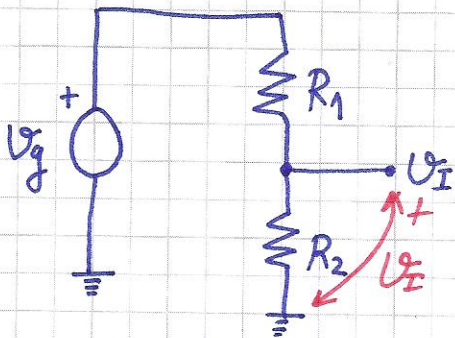


RAZDELNIK NAPONA

1. SMATRAJUĆI DA SU R_1 , R_2 I U_g POZNATE VELIČINE, ODREDITI U_I ?



$$U_g = i \cdot (R_1 + R_2)$$

$$U_I = i \cdot R_2 \Rightarrow i = \frac{U_I}{R_2}$$

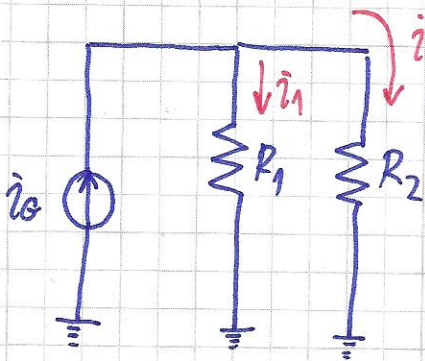
$$U_g = \frac{U_I}{R_2} (R_1 + R_2)$$

$$\Downarrow$$

$$U_I = \frac{R_2}{R_1 + R_2} U_g$$

STRUJNI RAZDELNIK

2. POD PRETPOSTAVKOM DA SU R_1 , R_2 I i_g POZNATE VELIČINE, ODREDITI i ?



$$i_g = i + i_1$$

$$i_1 R_1 = i R_2$$

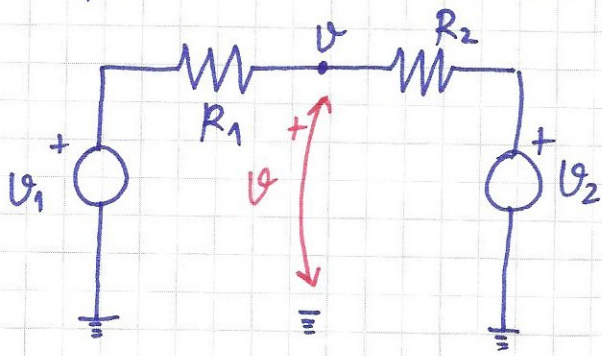
$$i_1 = \frac{R_2}{R_1} i$$

$$i_g = i + \frac{R_2}{R_1} i = \frac{R_1 + R_2}{R_1} i$$

$$\Downarrow$$

$$i = \frac{R_1}{R_1 + R_2} i_g$$

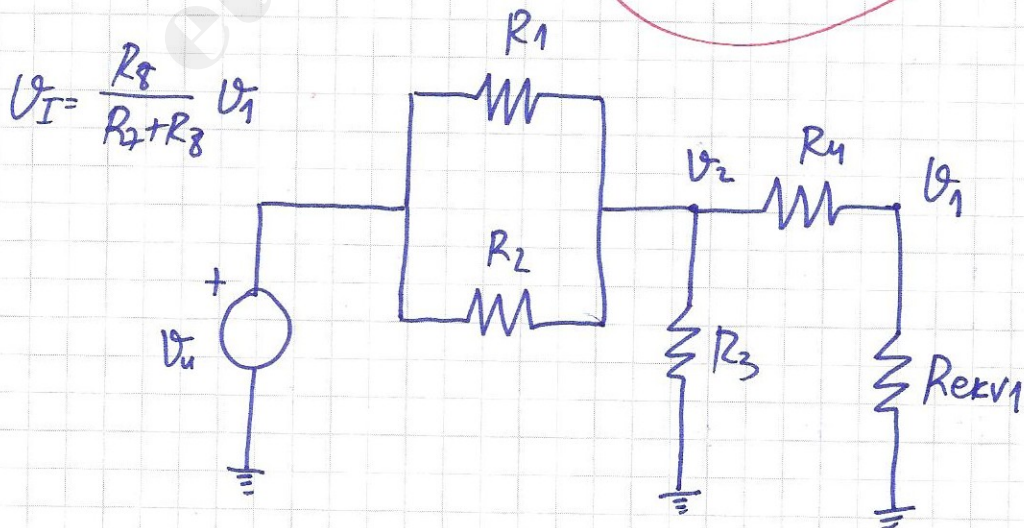
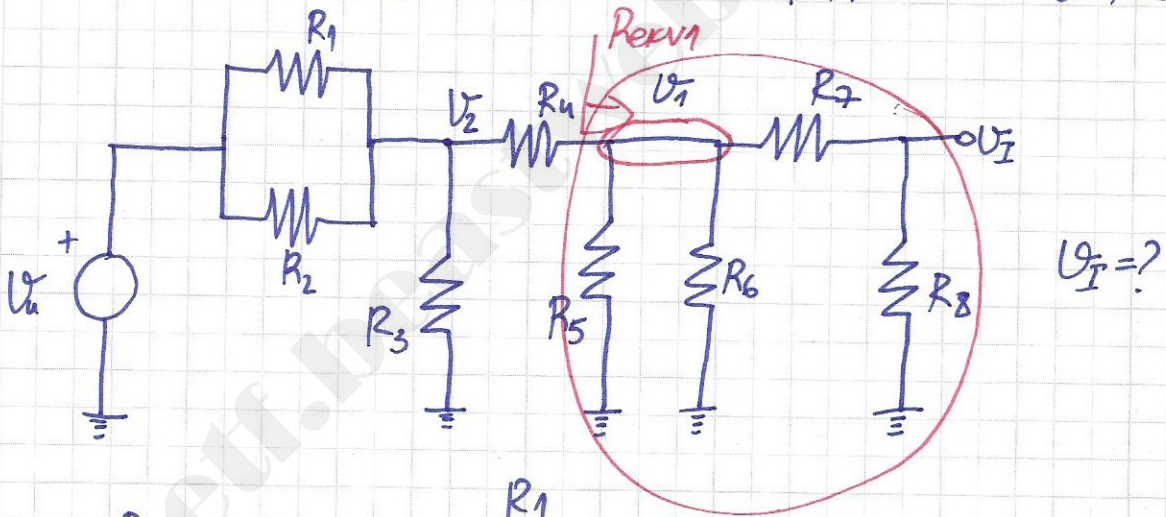
3. R_1, R_2, U_1, U_2 POZNATE VELIČINE. / ZRAČUNATI NAPON U .



$$U = U(U_1, U_2 = 0) + U(U_1 = 0, U_2)$$

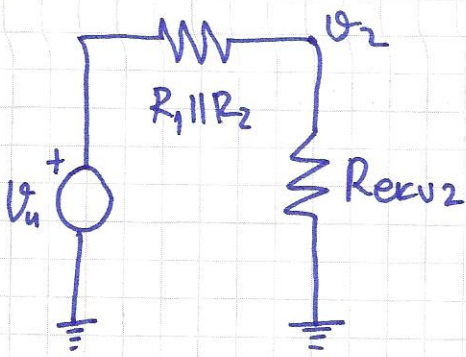
$$U = \frac{R_2}{R_1 + R_2} U_1 + \frac{R_1}{R_1 + R_2} U_2$$

4. U KOLU SA SLIKE SMATRATI DA SU SVE OTPORNOSTI I U_0 POZNATI
 $U_I = ?$



$$R_{ekv1} = (R_7 + R_8) \parallel R_6 \parallel R_5$$

$$U_1 = \frac{R_{ekv1}}{R_{ekv1} + R_4} U_2$$

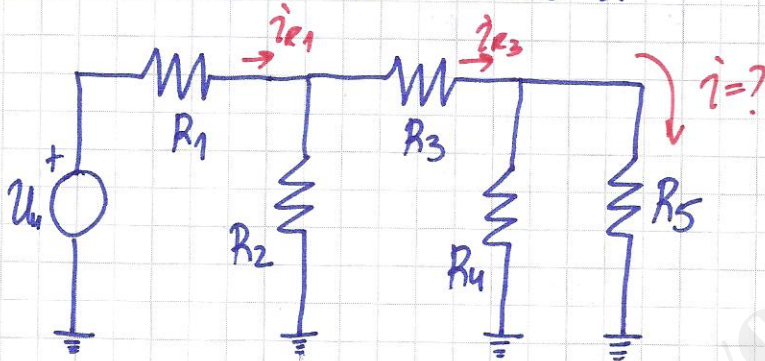


$$R_{ekv2} = R_3 \parallel (R_4 + R_{ekv1})$$

$$U_2 = \frac{R_{ekv2}}{R_1 \parallel R_2 + R_{ekv2}} U_u$$

VRATTI DALJE KROZ JEDNAČINE

5. ZA KOLO SA SLIKE SU POZNATE VREDNOSTI SVIH OTPORNIKA I NAPON U_u . ODREĐITI STRUJU i .



$$i = \frac{R_4}{R_5 + R_4} i_{R3}$$

$$i_{R3} = \frac{R_2}{R_2 + R_{ekv1}} i_{R1}$$

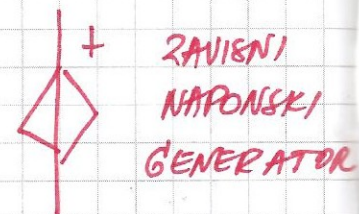
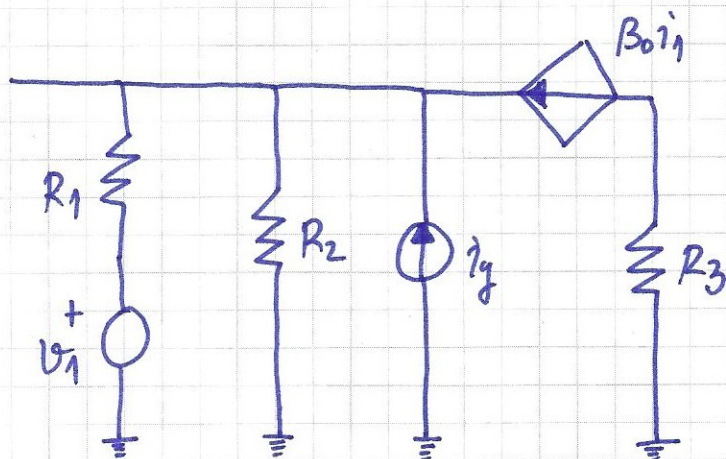
$$i_{R1} = \frac{U_u}{R_{ekv2}}$$

$$R_{ekv1} = R_3 \oplus (R_4 \parallel R_5)$$

$$R_{ekv2} = R_1 \oplus (R_2 \parallel R_{ekv1})$$

VRATTI DALJE KROZ JEDNAČINE

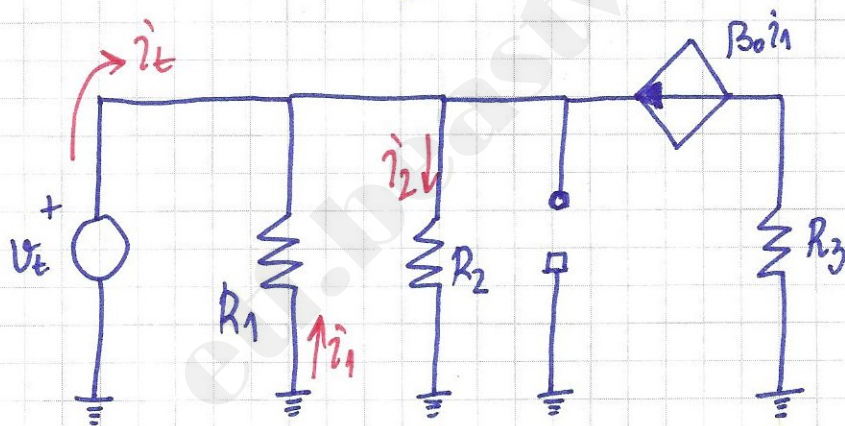
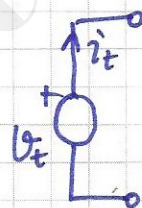
6. ZA KOLO SA SLIKE ODREDITI ULAZNU OTPORNOST R_{UL}
 POZNATE SU SVE OTPORNOSTI, i_g , U_1 , β_0



1^o UKIDANJE NEZAVISNIH GENERATORA

2^o POVEZIVANJE TEST GENERATORA U_t

3^o NALAZENJE ODNOSA $\frac{U_t}{i_t} = R_{EKV}$



$$i_t = i_2 - i_1 - \beta_0 i_1$$

$$i_1 = -\frac{U_t}{R_1}, \quad i_2 = \frac{U_t}{R_2}$$

$$i_t - \frac{U_t}{R_1} + \beta \left(-\frac{U_t}{R_1} \right) = \frac{U_t}{R_2}$$

$$i_t = U_t \left(\frac{1}{R_1} + \frac{1}{R_2} + \frac{\beta}{R_1} \right)$$

$$R_e = \frac{1}{\frac{1}{R_1} + \frac{1}{R_2} + \frac{\beta}{R_1}} = \underline{\underline{R_{UL}}}$$