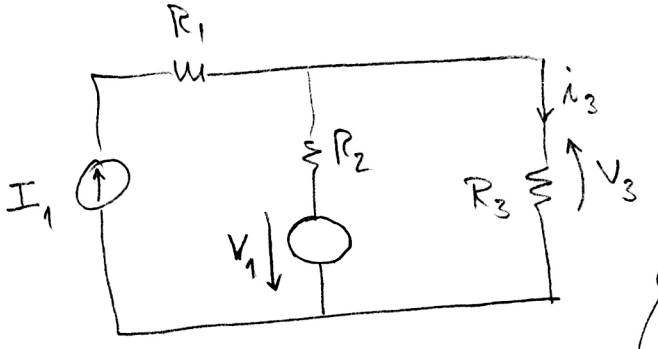
SUPERPOSITION

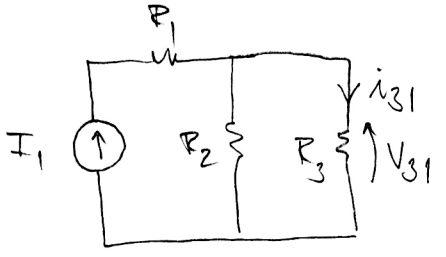
$I_1 = 1\,A$; $V_1 = 20\,V$

$R_1 = R_2 = R_3 = 10\,\Omega$



Find i_3 og V_3 vha. superposition.

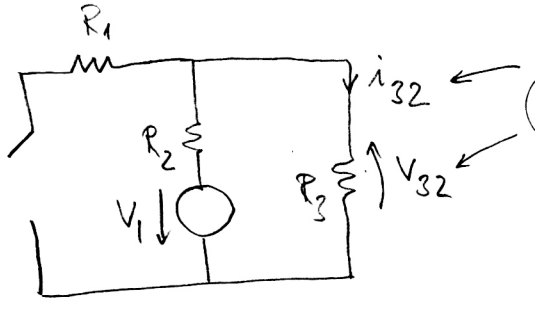
① $I_1 = 1A$; $V_1 = 0$



$$i_{31} = I_1 \cdot \frac{R_2}{R_2 + R_3} = 1 \cdot \frac{10}{10+10} = \underline{0,5\,A}$$

$$V_{31} = i_{31} \cdot R_3 = 0,5 \cdot 10 = \underline{5\,V}$$

② $I_1 = 0$; $V_1 = 20V$



NB! Samme def. retning som under ①

$$i_{32} = -\frac{V_1}{R_2 + R_3} = -\frac{20}{10+10} = \underline{-1\,A}$$

$$V_{32} = i_{32} \cdot R_3 = -1 \cdot 10 = \underline{-10\,V}$$

Superposition $\Rightarrow$

$$i_3 = i_{31} + i_{32} = 0,5 + (-1) = \underline{\underline{-0,5\,A}}$$

$$V_3 = V_{31} + V_{32} = 5 + (-10) = \underline{\underline{-5\,V}}$$