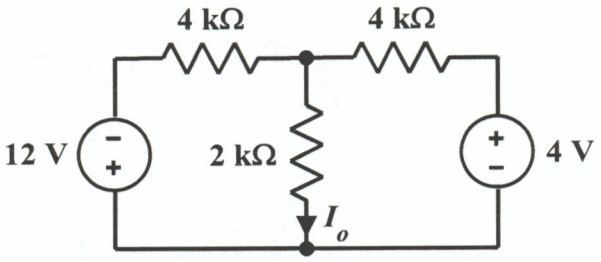
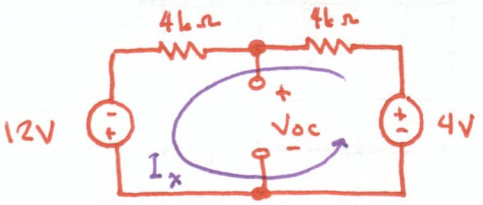
EE 2240

Problem #04

The 2kΩ resistor is the load. Use the method described in class to find the Thévenin equivalent of the remainder of the circuit. (***Do not use source transformations!***) Then determine the value of I_o.



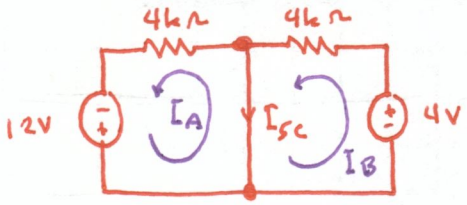


$-12V - 4V + (8k\Omega)\, I_x = 0$

$\Rightarrow \quad 8000\, I_x = 16$

$I_x = 2mA$

$V_{oc} = 4V - (4k\Omega)\, I_x = -4V$



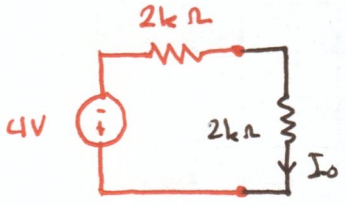
$I_A = \frac{12V}{4k\Omega} = 3\,mA$

$I_B = \frac{4V}{4k\Omega} = 1\,mA$

$I_{SC} = I_B - I_A = -2\,mA$

$V_T = V_{oc} = -4V$

$R_T = \frac{V_{oc}}{I_{SC}} = \frac{-4V}{-2mA} = 2k\Omega$



$I_o = -\frac{4V}{4k\Omega} = -1\,mA$