

Dr. Mohamed Bakr, EE2C15, 2007

Note Title

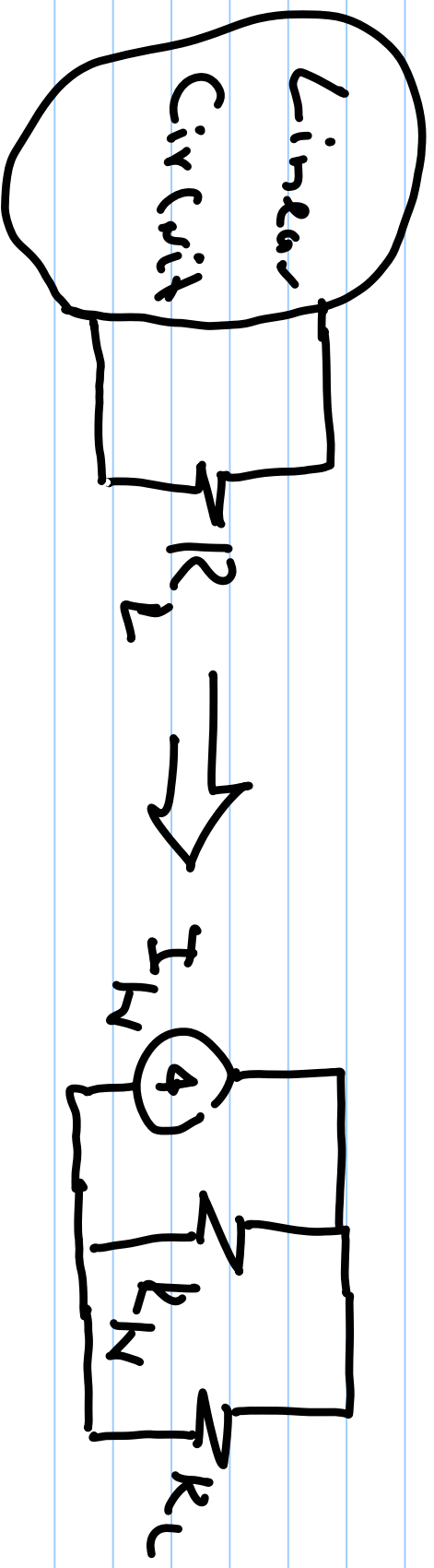
10/6/2007

Lecture 13.

From Section 5.3 of Textbook

Solve 5.49, 5.51, 5.56, 5.68

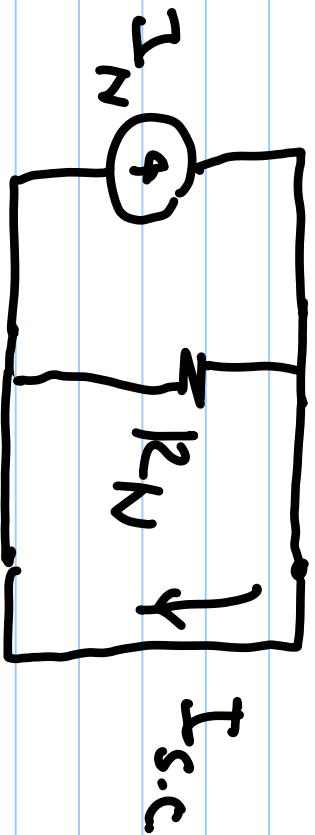
Norton's Theorem



any linear circuit can be

replaced by a current source I_N
in parallel with a resistor R_N

Determining Norton's Parameters



1) Apply Short

Circuit at port

$$E_o \text{ get } I_N = I_{s.c}$$



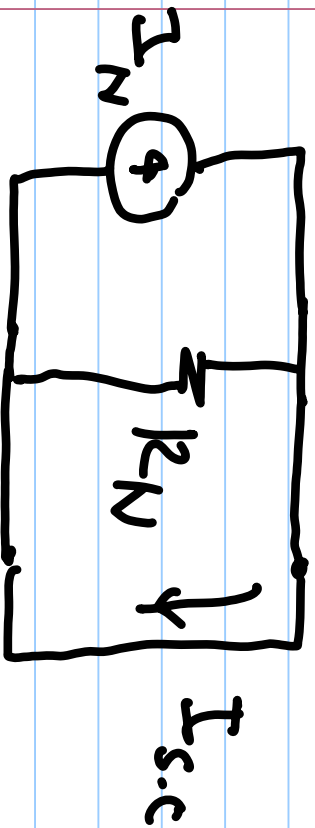
2) Apply open

Circuit E_o get

$$V_{o.c} = I_N R_N$$

$$R_N = \frac{V_{o.c}}{I_N}$$

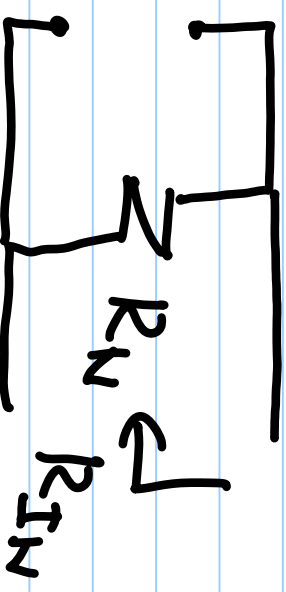
An Alternative Method



1) Apply short

Circuit at port

to get $I_N = I_{s.c}$



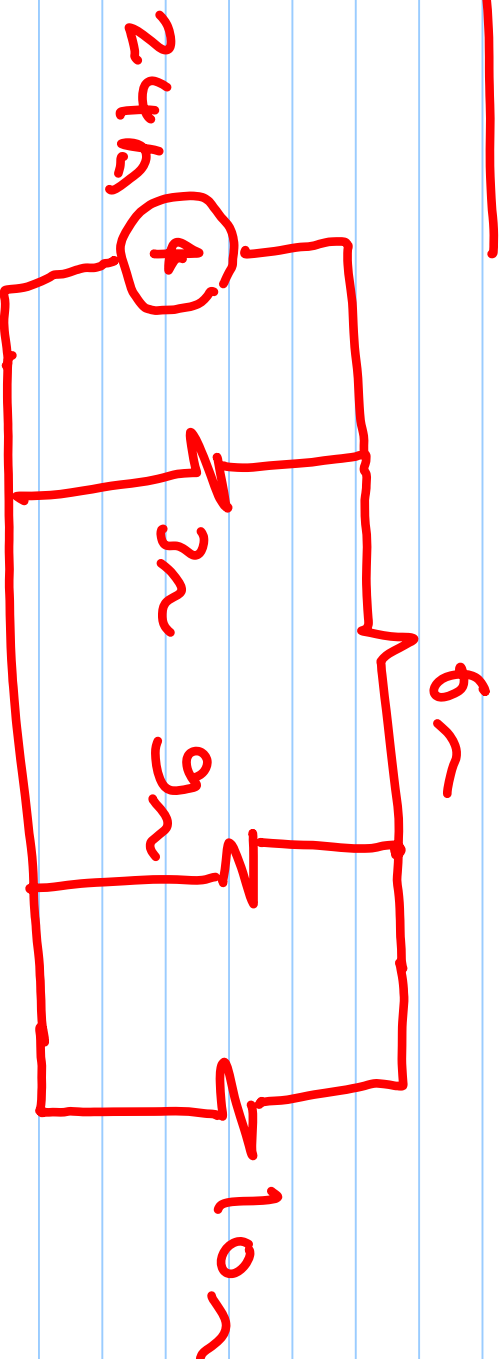
2) Remove all

independent sources

$R_{IN} = R_N$

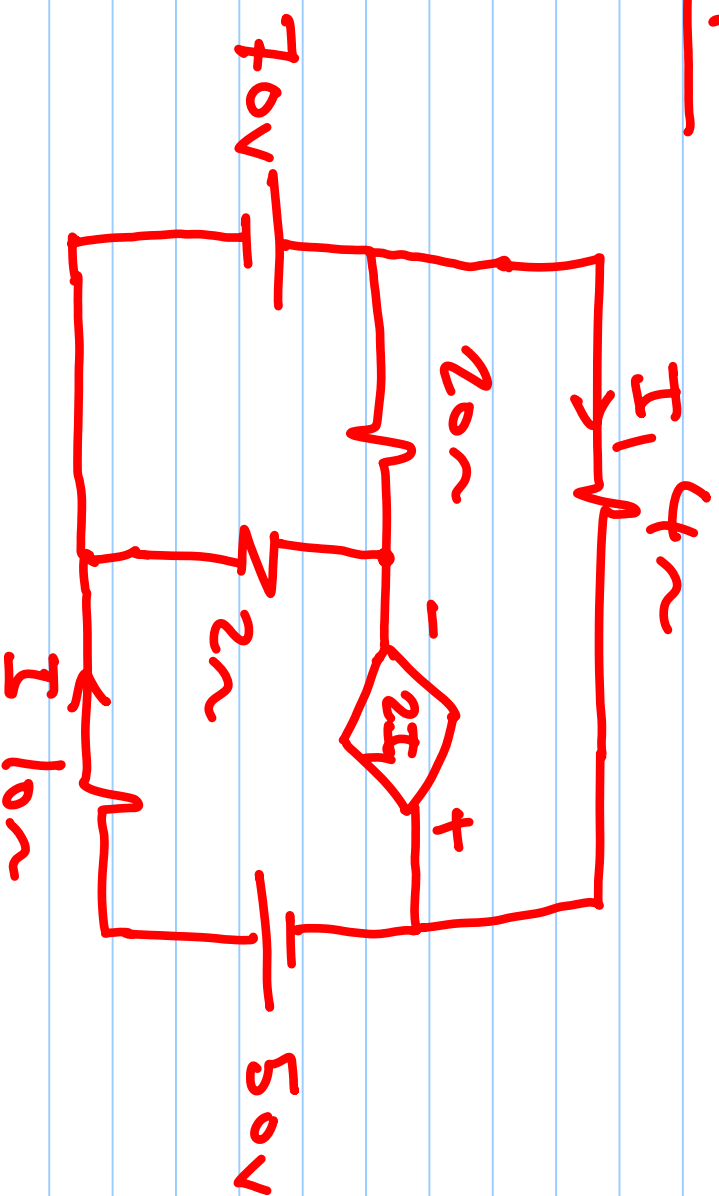
Notice $R_{TH} = R_N$ and $I_N = \frac{V_{TH}}{R_{TH}}$

Example



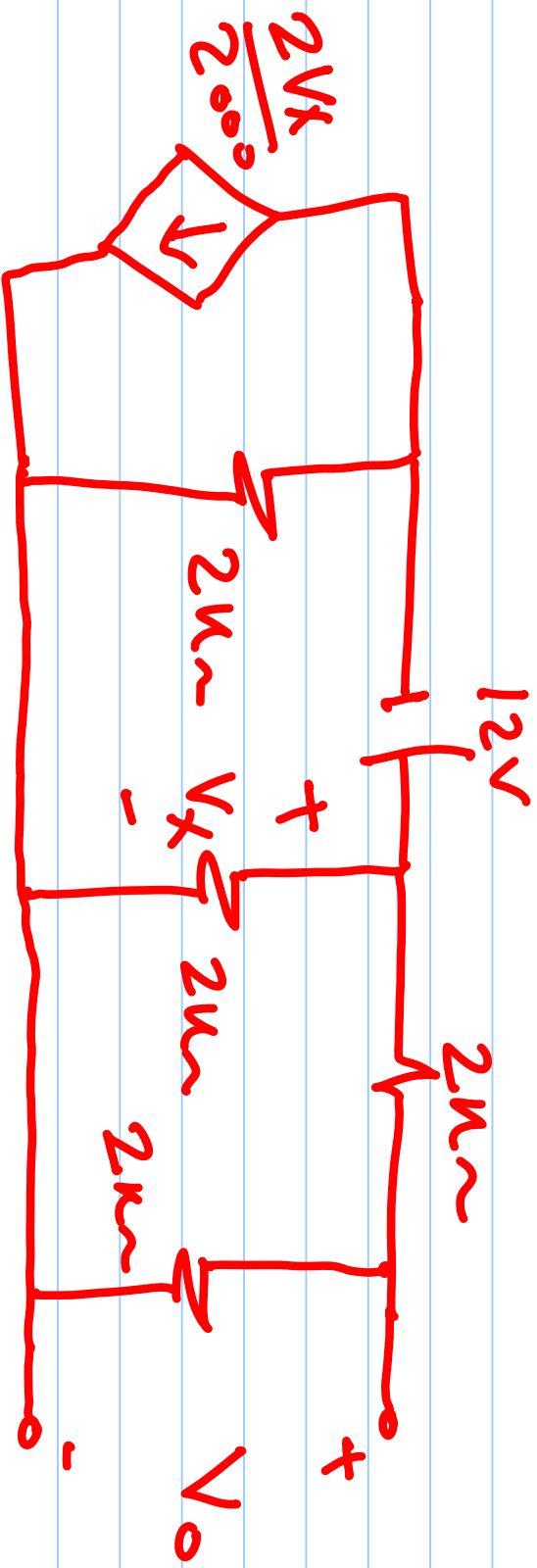
Determine the current in the load resistor using Norton's Theorem

Example



Determine the current I using Norton's Theorem.

Example



Find V_o using Norton's Theorem.