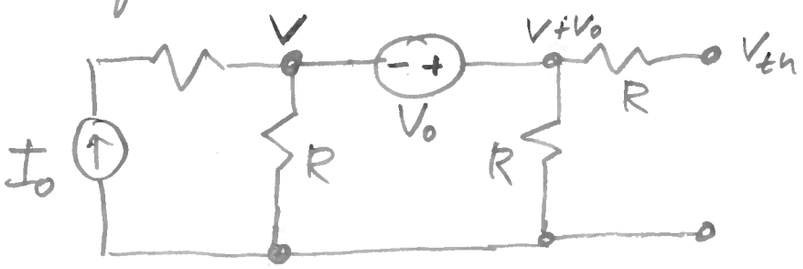
06 Apr. 2018

# Equivalent Circuit example




The open circuit voltage, $V_{th}$ is $V_{th} = V + V_o$

Let's find the unknown voltage V.

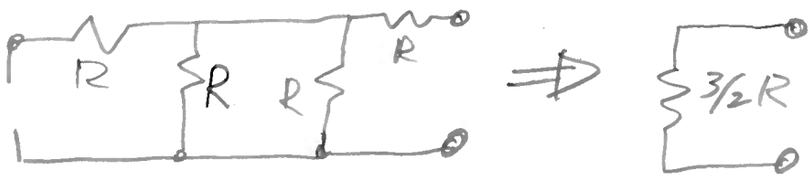
$$KCL \Rightarrow -I_o + \frac{V}{R} + \frac{(V+V_o)}{R} = 0$$

$$\Rightarrow V = \frac{I_o R - V_o}{2}$$

$$\Rightarrow V_{th} = V + V_o = \frac{I_o R + V_o}{2}$$

(Note that, on the board, I wrote $V_{th} = \frac{I_o R - V_o}{2}$ by error!)

The equivalent resistance is




The Equivalent Circuit is: