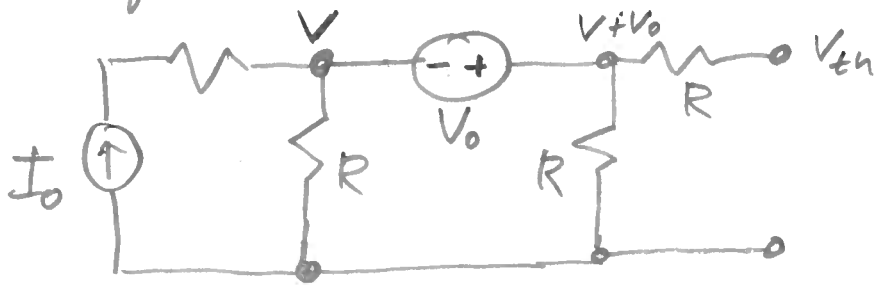


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# Equivalent Circuit example



The open circuit voltage,  $V_{th}$  is  $V_{th} = V + V_0$

Let's find the unknown voltage  $V$ .

$$KCL \Rightarrow -I_0 + \frac{V}{R} + \frac{(V+V_0)}{R} = 0$$

$$\Rightarrow V = \frac{I_0 R + V_0}{2}$$

$$\Rightarrow V_{th} = V + V_0 = \frac{I_0 R + V_0}{2}$$

(Note that, on the board, I wrote  $V_{th} = \frac{I_0 R - V_0}{2}$  by error!)

The equivalent resistance is



The Equivalent Circuit is:

