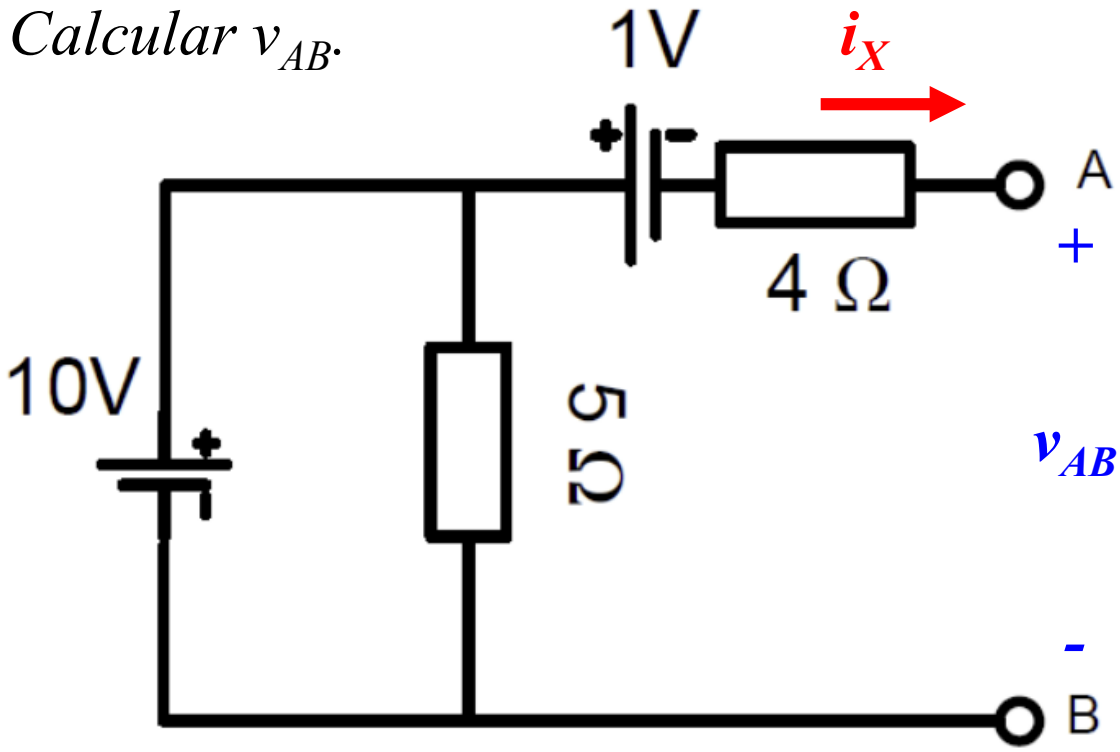
Ejercicio 1:

Calcular v_{AB}.



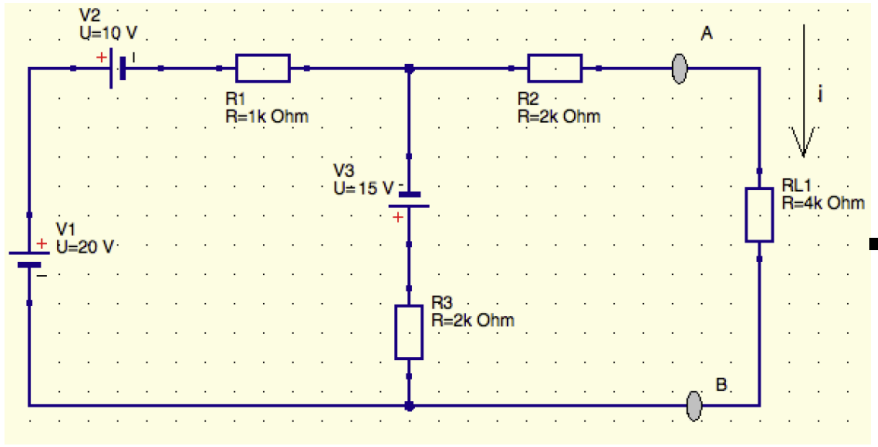
$$i_X = 0A$$

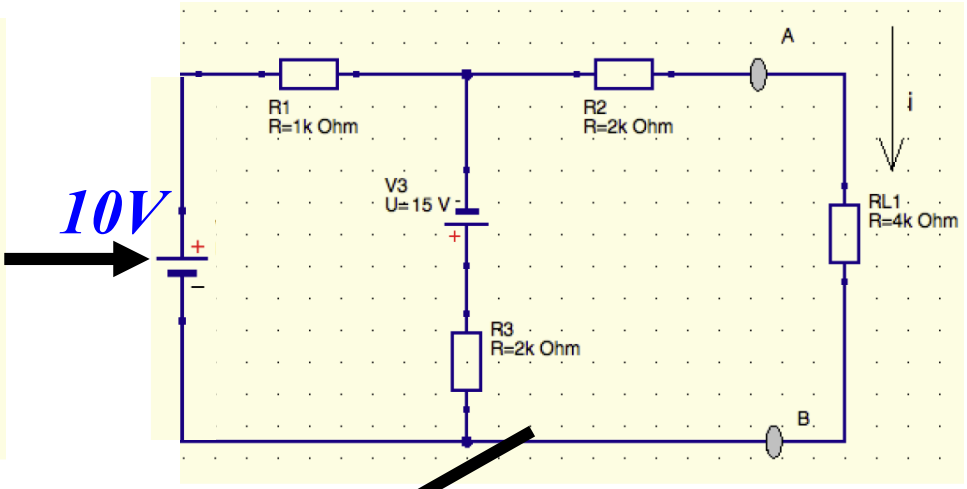
$$-10V + 1V + 0A \cdot 4\Omega + v_{AB} = 0V \longrightarrow v_{AB} = 9V$$

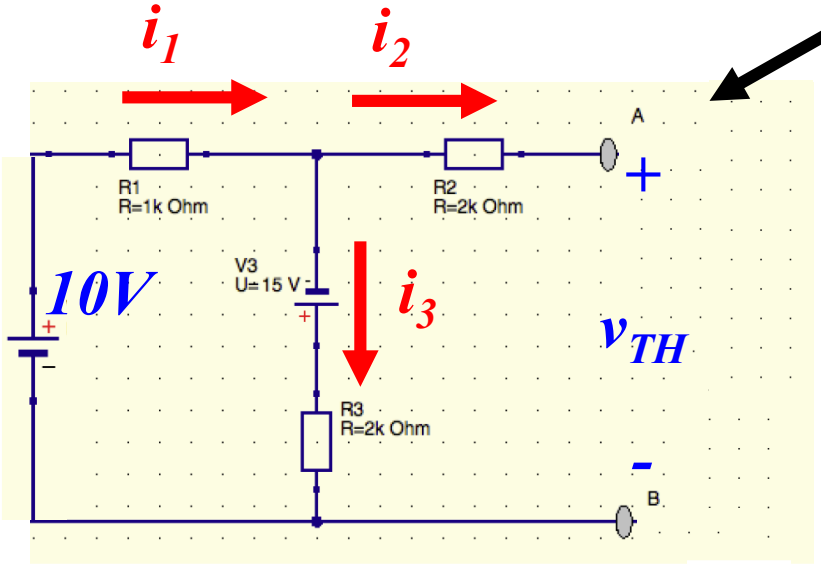
Otra opción: Superposición

Ejercicio 2:

Calcular el equivalente Thevenin entre A y B (circuito de la izquierda) y la corriente i.

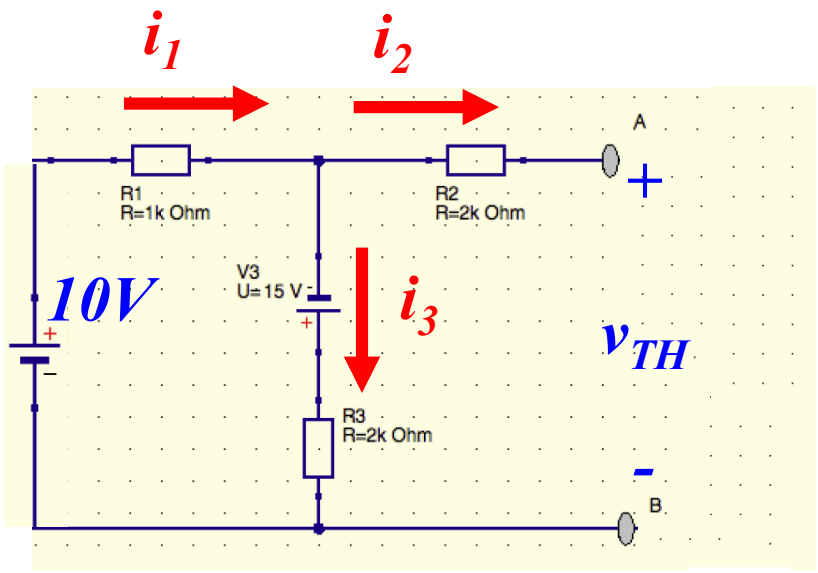






Ejercicio 2:

Calcular el equivalente Thevenin entre A y B (circuito de la izquierda) y la corriente i.



$$\left.\begin{array}{l} \textbf{LCK:}\quad i_1 = i_2 + i_3 \\ \textbf{C. abierto:}\quad i_2 = 0A \end{array}\right\} \longrightarrow i_3 = i_1$$

LTK:

$$-10V + 1k\Omega \cdot i_1 - 15V + 2k\Omega \cdot i_3 = 0V$$

$$\downarrow$$

$$-10V + 3k\Omega \cdot i_1 - 15V = 0V$$

$$\downarrow$$

$$i_1 = i_3 = (25 \cdot 10^{-3}/3)A$$

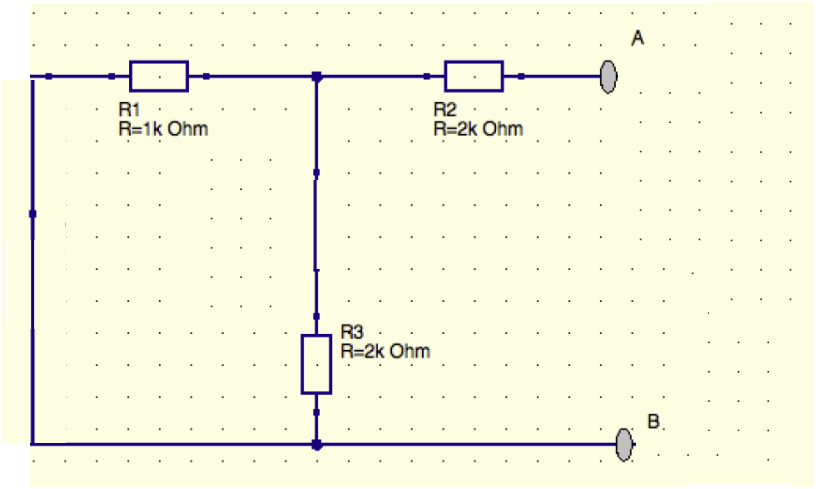
LTK:

$$-2k\Omega \cdot i_3 + 15V + 2k\Omega \cdot i_2 + v_{TH} = 0V \longrightarrow v_{TH} = 1{,}67V$$

Otra opción: Superposición

Ejercicio 2:

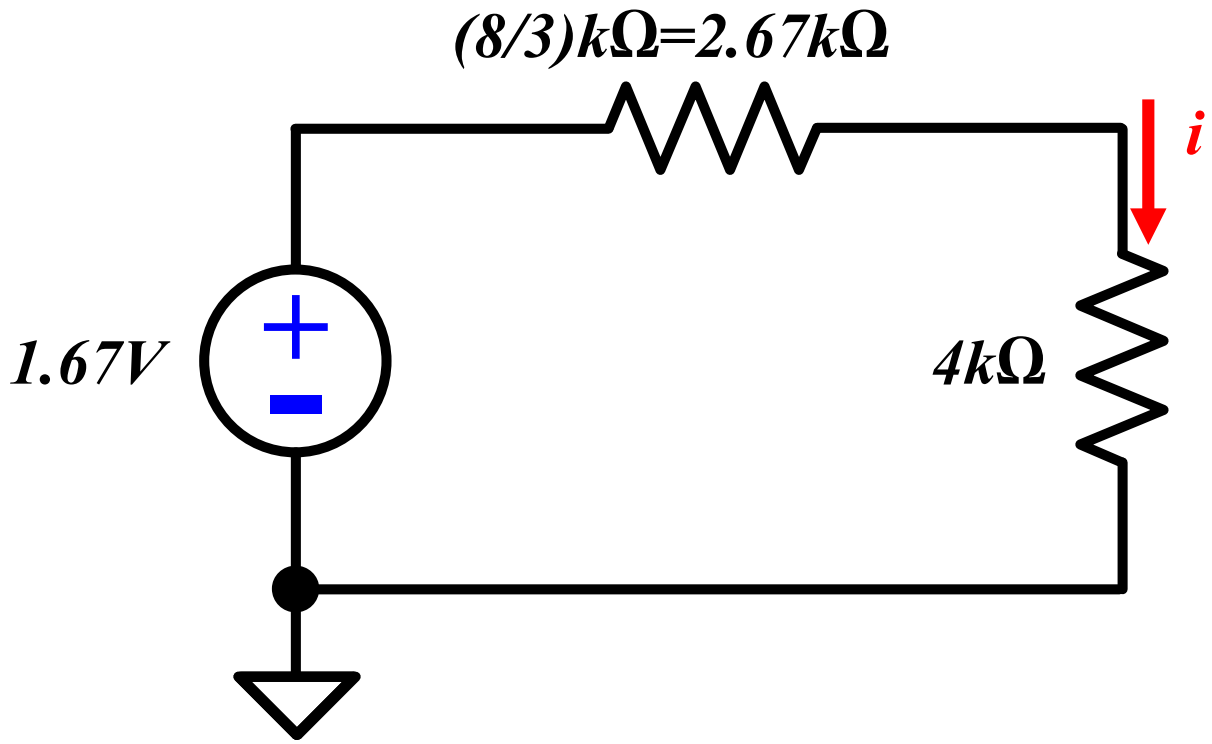
Calcular el equivalente Thevenin entre A y B (circuito de la izquierda) y la corriente i.



$$R_{TH} = (1k\Omega \,//\, 2k\Omega) + 2k\Omega = (8/3)\ k\Omega$$

Ejercicio 2:

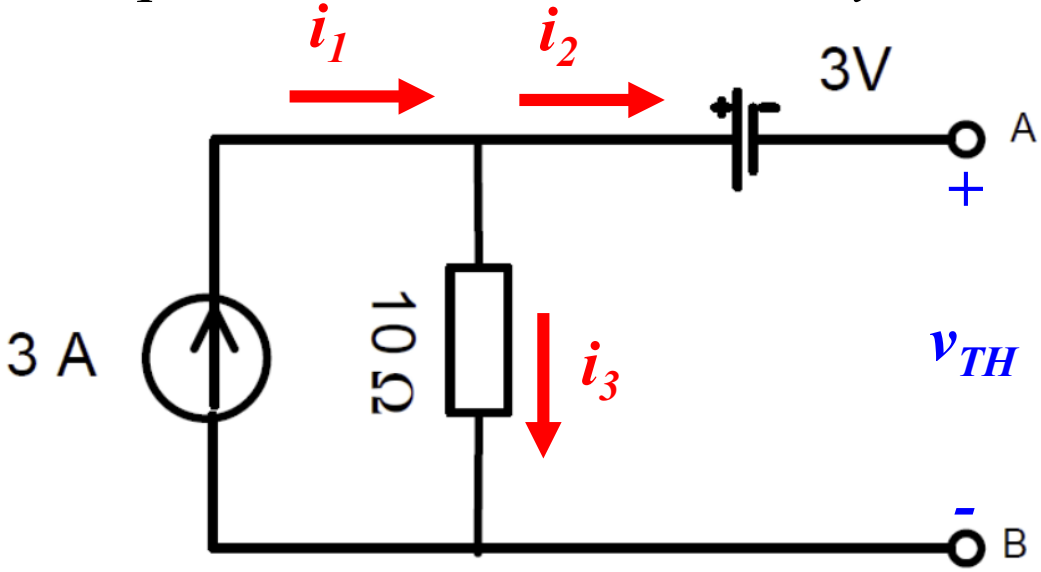
Calcular el equivalente Thevenin entre A y B (circuito de la izquierda) y la corriente i.



i = 1.67V/(2,67kΩ+4kΩ)=250μA

Ejercicio 3:

Calcular el equivalente Thevenin entre A y B.



LCK: $i_1 = i_2 + i_3$

C. abierto: $i_2 = 0A$

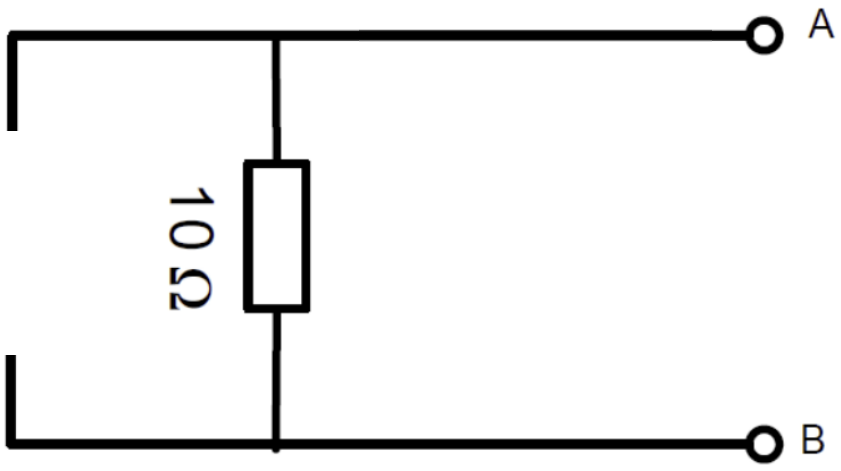
$\Rightarrow$ $i_3 = i_1 = 3A$

LTK: $-3A \cdot 10\Omega + 3V + v_{TH} = 0V$ $\Rightarrow$ $v_{TH} = 27V$

Otra opción: Superposición

Ejercicio 3:

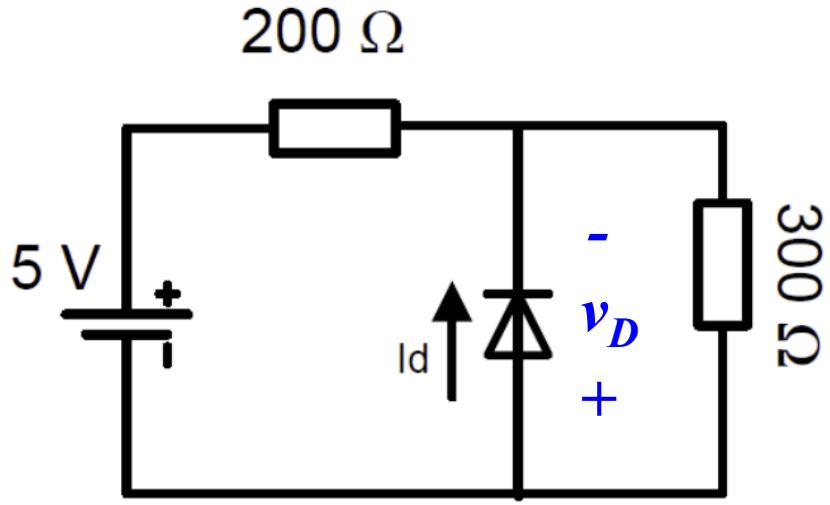
Calcular el equivalente Thevenin entre A y B.



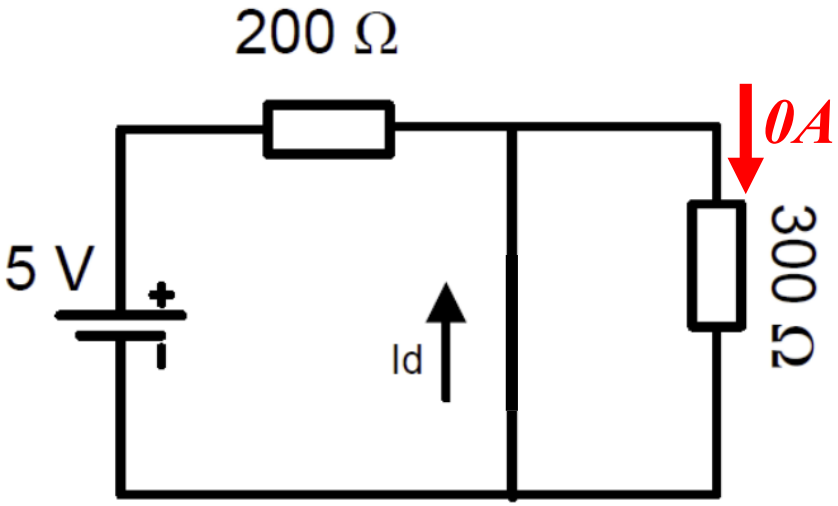
$$R_{TH} = 10\Omega$$

Ejercicio 4:

Calcular i_D considerando un diodo ideal.



Hipótesis 1: diodo ON → $v_D=0V$ → $i_D>0A$?



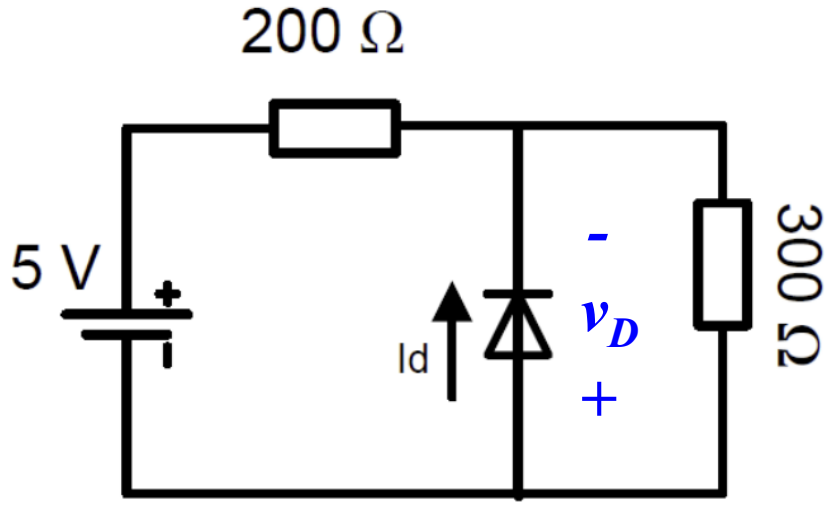
$i_D=(-1)\cdot 5V/200\Omega<0A$

↓

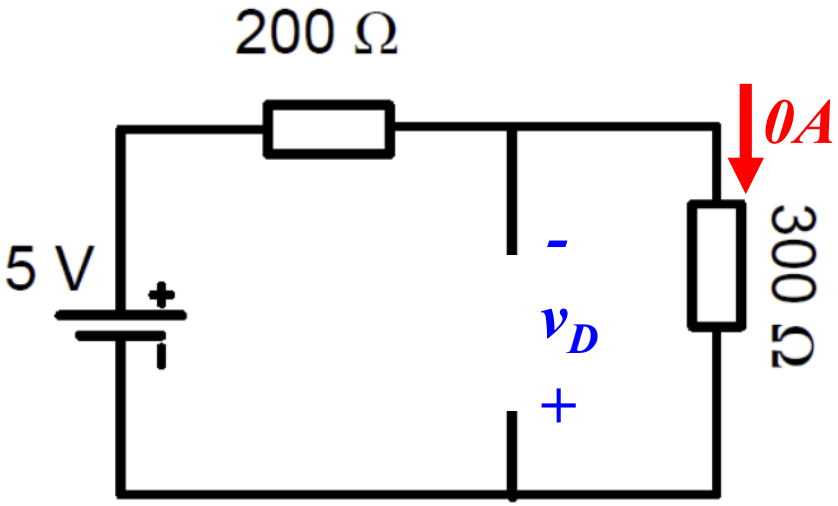
Hipótesis incorrecta

Ejercicio 4:

Calcular i_D considerando un diodo ideal.



Hipótesis 2: diodo OFF → i_D=0A → v_D<0V?



$v_D=(-1)\cdot 5V\cdot 200\Omega/(200\Omega+300\Omega)=$

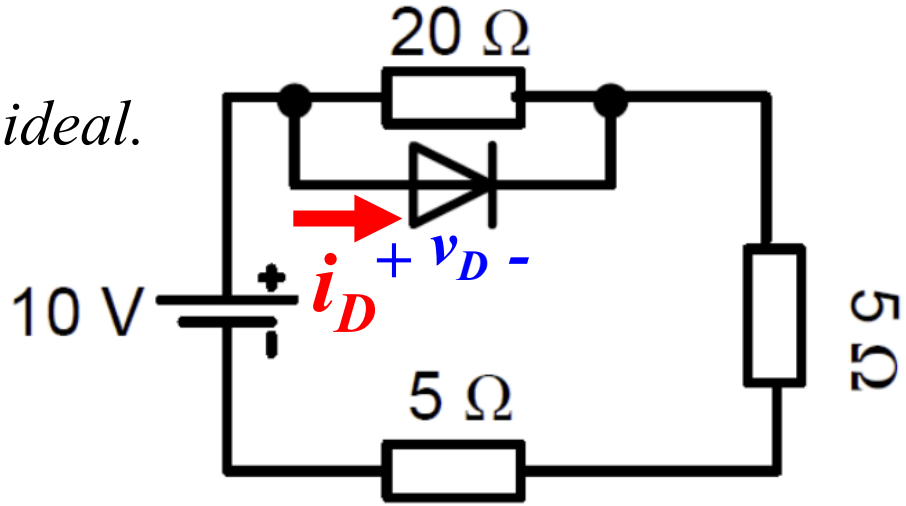
$=-3V<0V$

↓

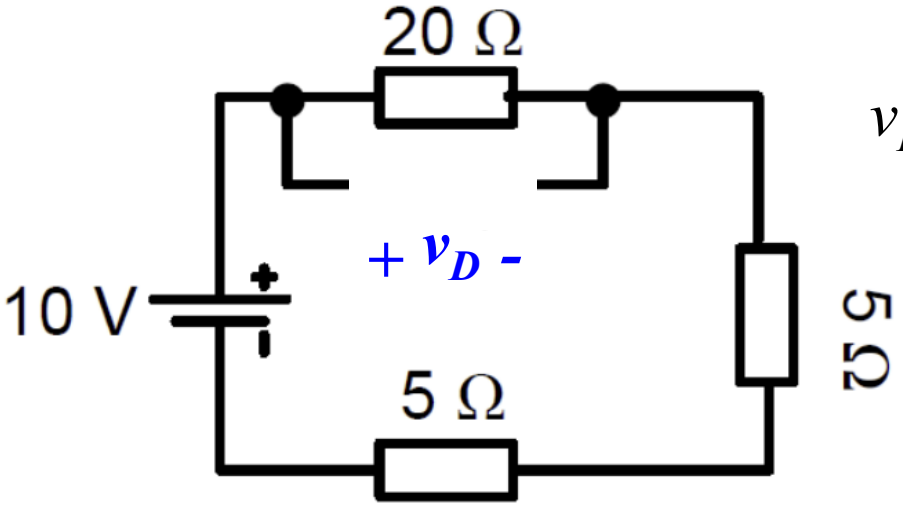
Hipótesis correcta

Ejercicio 5:

Calcular i_D considerando un diodo ideal.



Hipótesis 1: diodo OFF → $i_D=0A$ → $v_D<0V$?



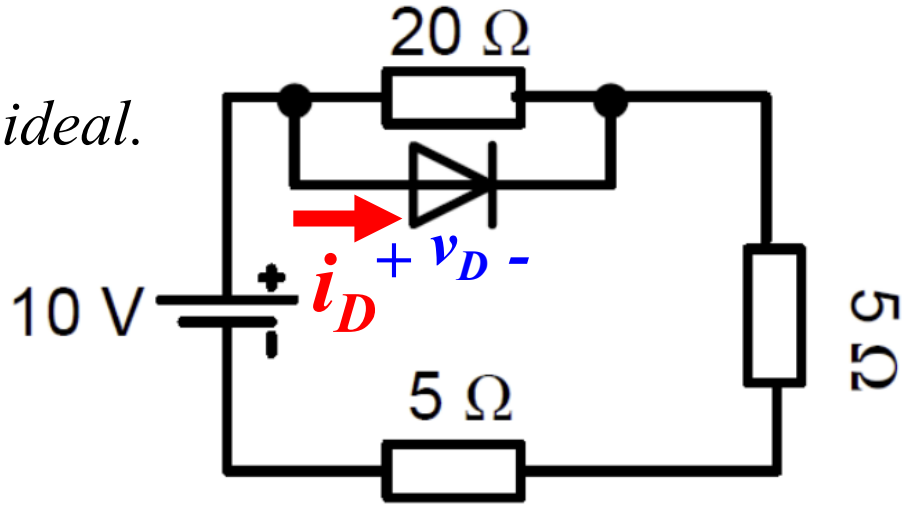
$v_D=10V\cdot 20\Omega/(20\Omega+5\Omega+5\Omega)>0V$

↓

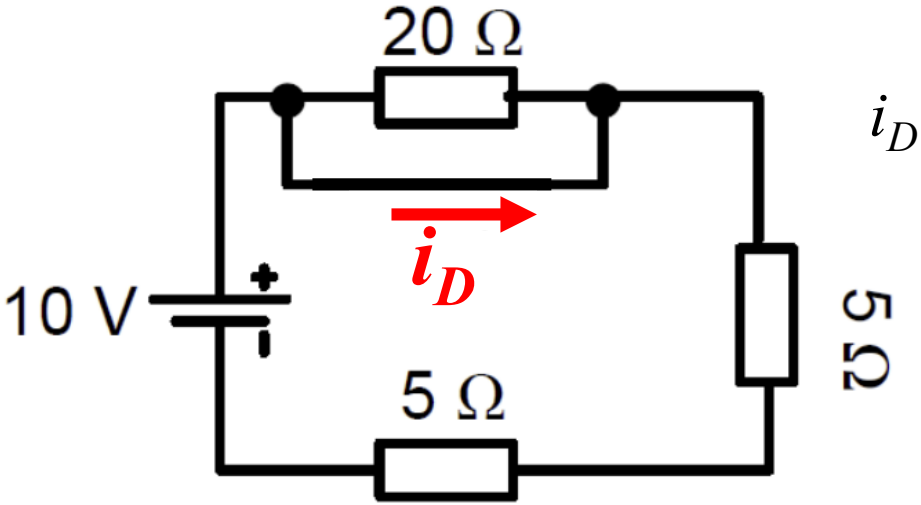
Hipótesis incorrecta

Ejercicio 5:

Calcular i_D considerando un diodo ideal.



Hipótesis 2: diodo ON → $v_D=0V$ → $i_D>0A$?



$i_D=10V/(5\Omega+5\Omega)=1A>0A$

↓

Hipótesis correcta