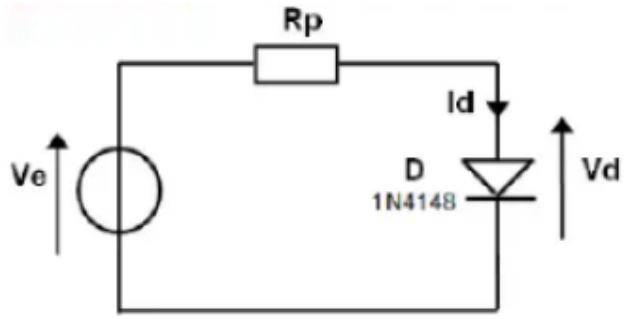
Exercise 1 :

Let us consider the diagram opposite :
We give Ve = 5 V, Rp = 1 KΩ and Vs = 0.6 V.

Determine the current value Id.



Solution 1 :

Ve = Rp.Id + Vs ⇒
Ve – Vs = Rp.Id ⇒
Id = (Ve-Vs)/Rp = 4,4/(103) = 4,4.10-3 A = 4,4 mA

Exercise 2 :

Let us consider the diagram opposite:

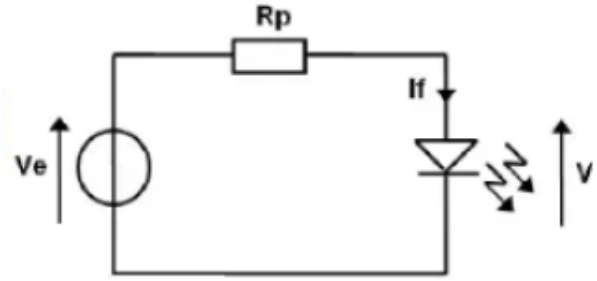
Knowing that the standard If and Vf values

Red LEDs ϕ 5mm are If = 10 mA and

Vf = 1.6 V and Ve = +5 V.

Determine the value of the resistance Rp

allowing the LED to be properly polarized.



Solution 2 :

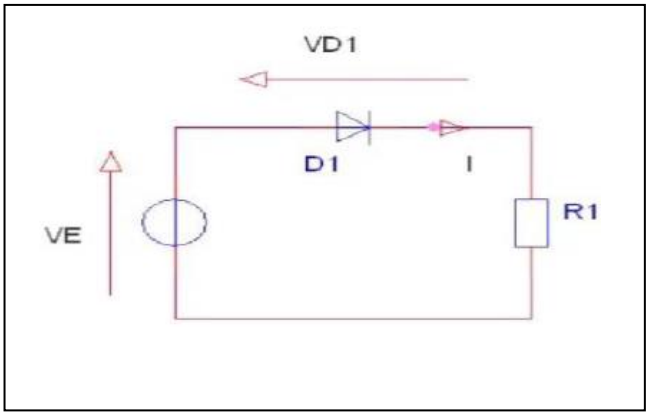
Ve = Rp.If + Vf ⇒ Ve – Vf = Rp.If ⇒ Rp = (Ve – Vf)/If = $3,4/10^{-2}$ = 340 Ω.

Exercise 3 :

Let us consider the diagram opposite:

1) Indicate on the diagram, the voltage VR1 (at the Terminals of R1) and current I (in the direction positive when it exists).

2) Knowing that $VD1_{threshold}$ = 0.7 V.



What is the value of Ve if the diode is

Blocked.

Solution 3:

1) De bas en haut de R1.

2) Ve = VD1 + R1.I
D1 bloquée $\Rightarrow$ I = 0 $\Rightarrow$ Ve = VD1.
La diode est bloquée si VD1 < 0,7V
La diode est passante si VE > 0,7V.