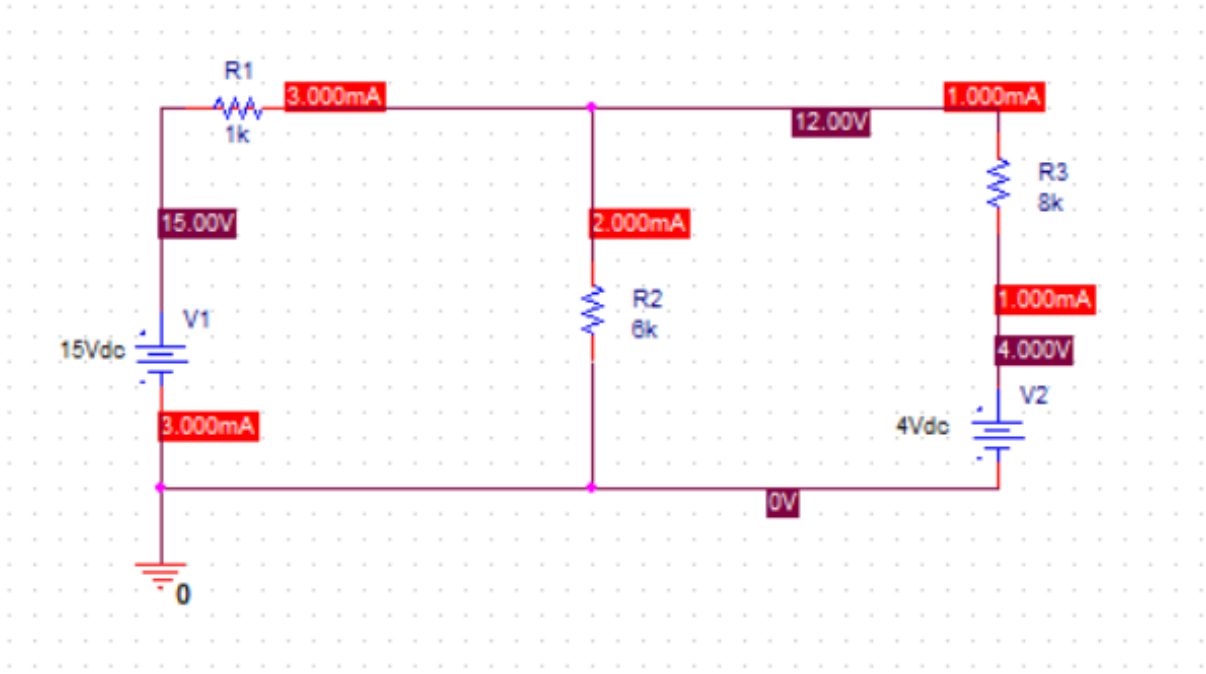
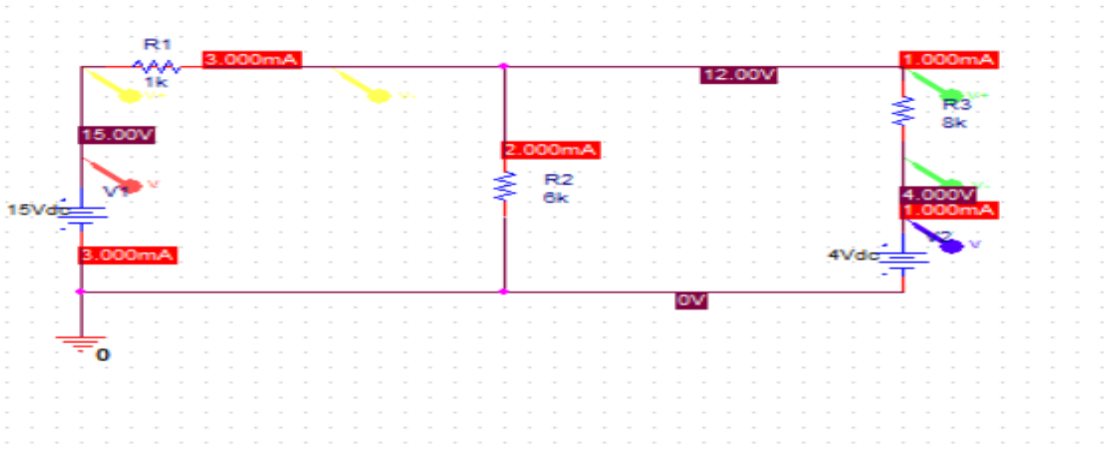
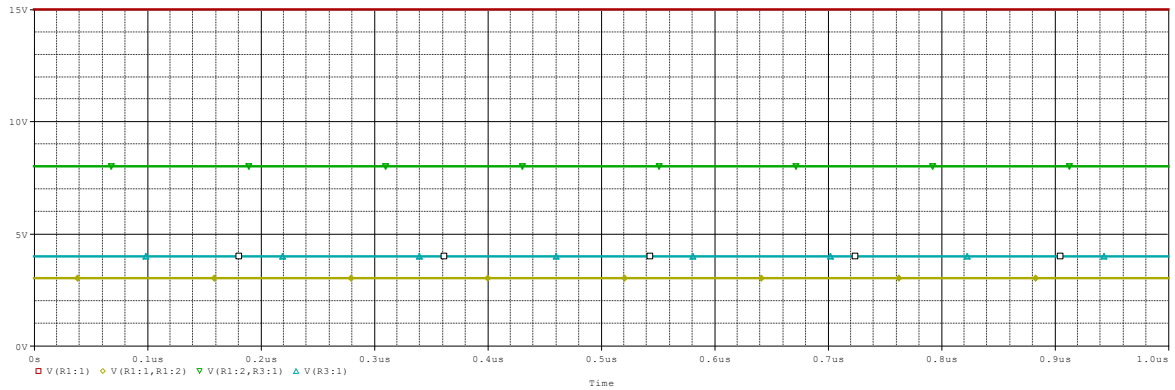
Compte rendu du TP1 : GANA + EL DEBES

Exercice 1 :







Loi d'Ohm:

U=R.I

U1=1000*3*10^-3

U1=3V

Lois de Kircchoff :

Loi des nœuds :

I1=I2+I3

3000=1000+2000

Loi des mailles :

On cherche U2= R2*I2

U2=6000*2*10^-3

U2= 12V

D'après la loi des mailles, -U+U1+U2=0

Donc U1= U-U2

U1=15-12=3V

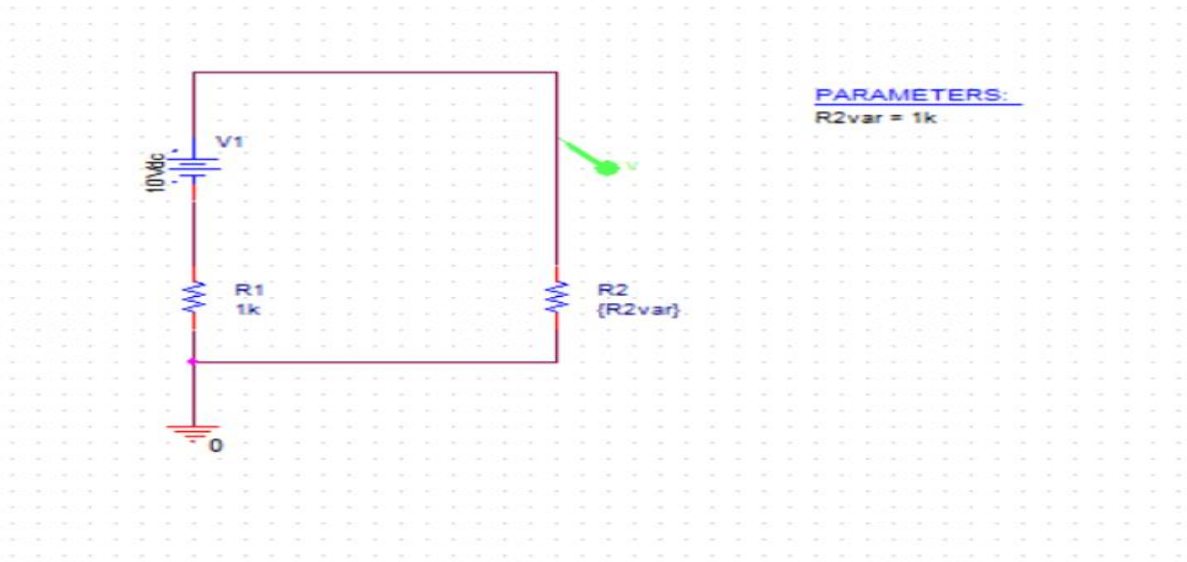
De même, -U+U1+U3+U4=0

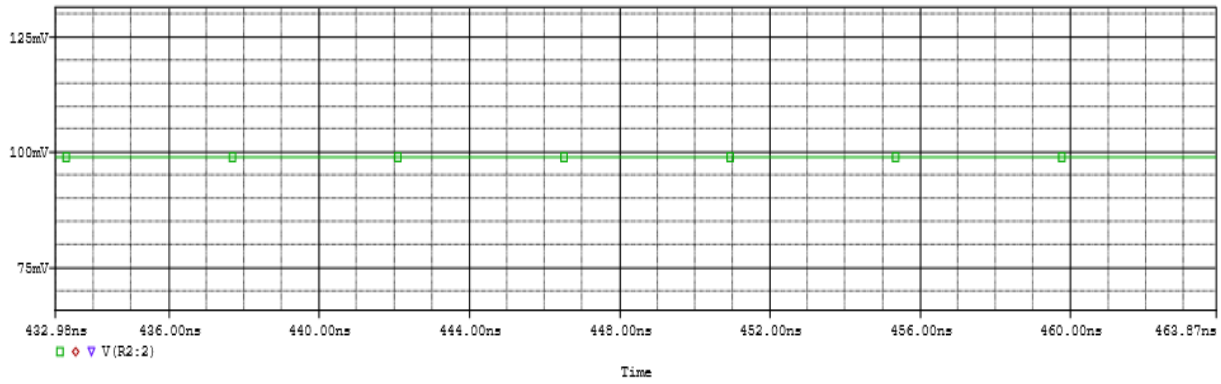
Donc U3=U-U1-U4=15-3-4

U3=8V

Grâce à la fonction simulation, on obtient la valeur de la tension aux bornes de la résistance R3 : 4V

Exercice 2 :

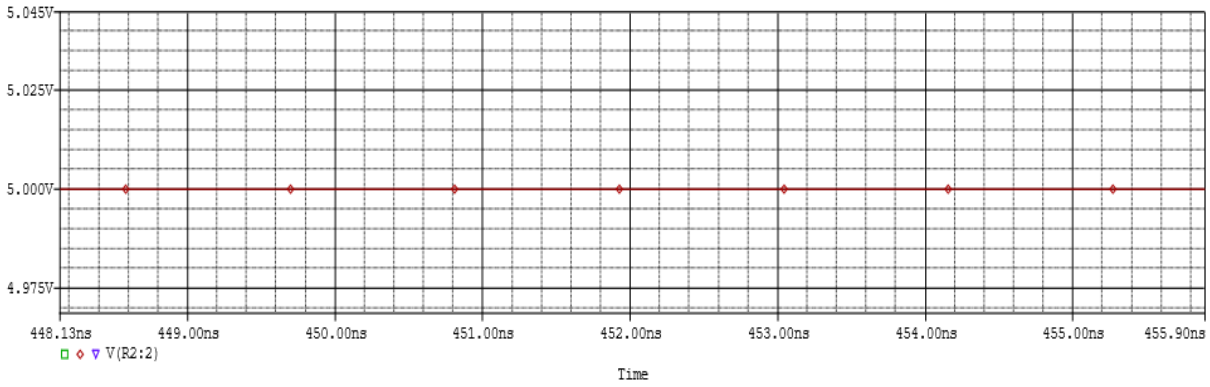




U2= [(R2var)/(R1+R2var)]*V1

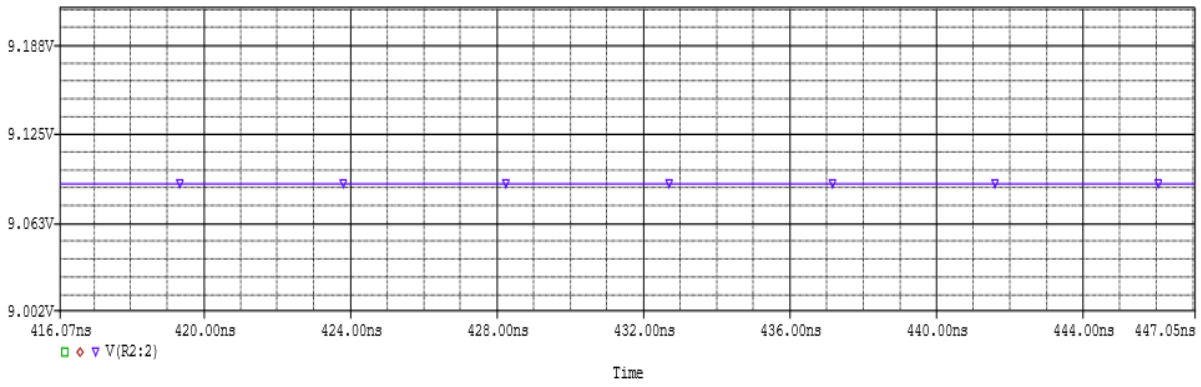
R2var= 10 ohm

U2= 10*(10/(1000+10))= 0.0999 V =99Mv



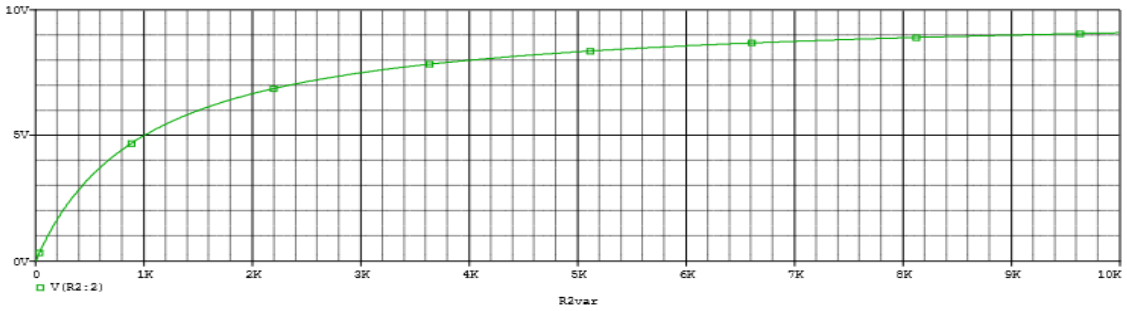
R2var= 1000 ohm (1k ohm)

U2=10* (1000/(1000+1000)) = 5V



R2var= 10000 ohm (10k ohm)

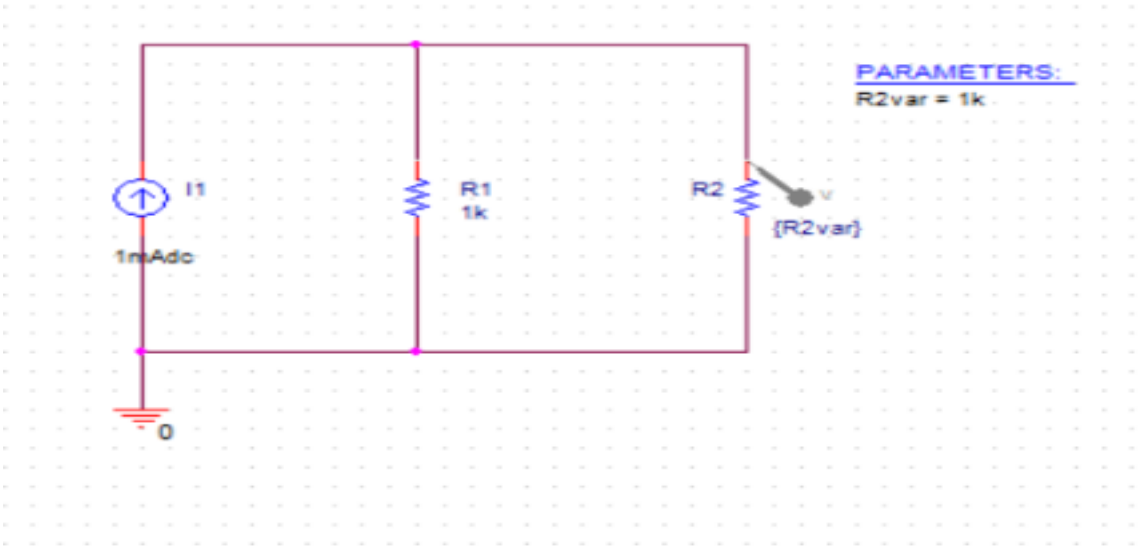
U2= (10000/(1000++10000))*10= 9.09V



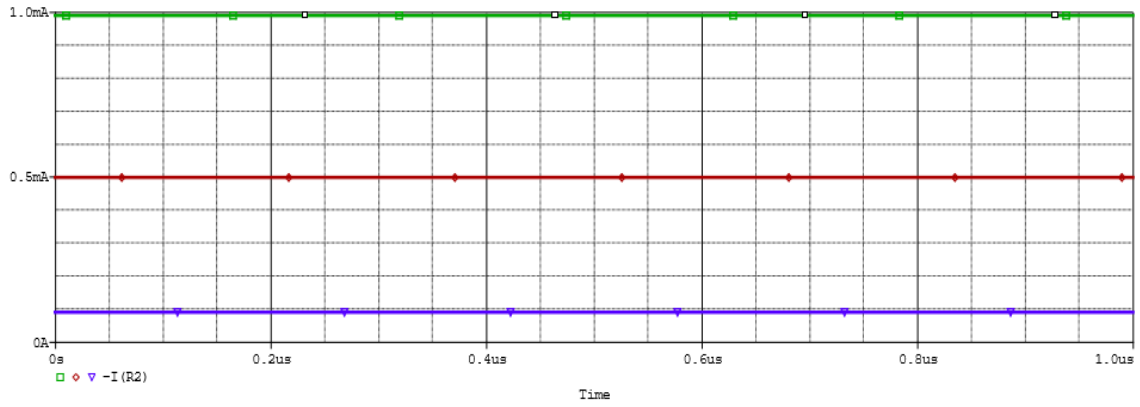
Pour les valeurs de R2var on retrouve les valeurs de U2, sur la courbe.

La courbe tend vers 9.0 V ce qui correspond bien à U_2 pour R2 = 10 k	Pour R2 = 1k on retrouve bien U2 = 5 V

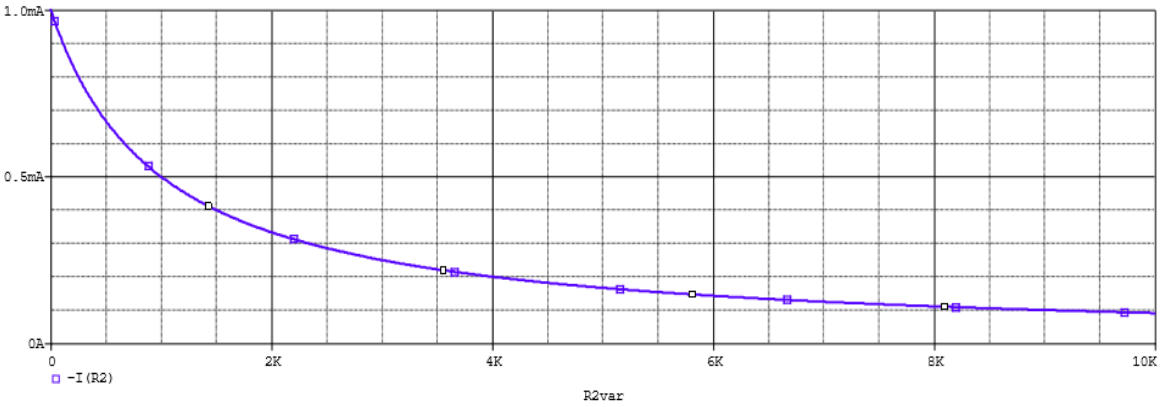
Exercice 3 :



Graphique des 3 valeurs de la résistance R2var en fonction du temps (simulation) :



Courbe du courant (dans R2) en fonction de R2var :



I2= (R1/(R1+R2var))/1

R2var=10 ohm

I2=(1000/(1000+10))*(1*10^-3)= 0,99 mA

R2var=1000 ohm = 1k ohm

I2=(1000/(1000+1000))*(1*10^-3)= 0.5 mA

R2var=10000 ohm = 10k ohm

I2=(1000/(1000+10000))*(1*10^-3)=9.09*10^-5 A

Exercice 4: (montage)