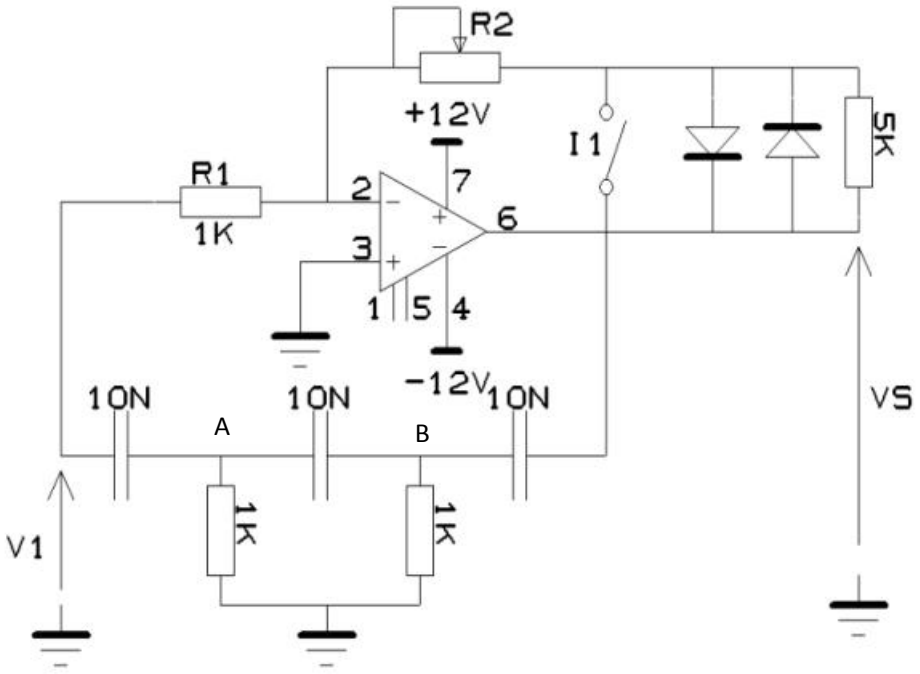
TD3

1.



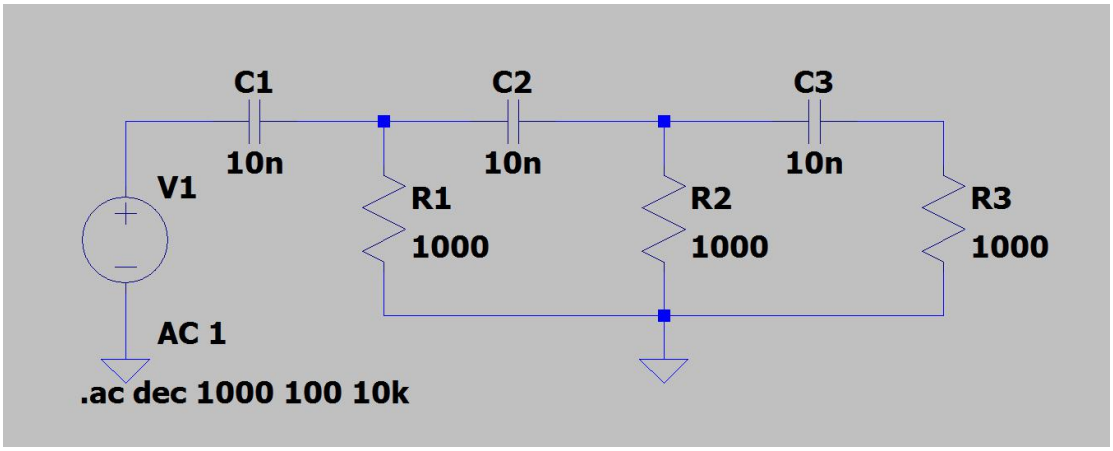
$$V_A = \frac{j\omega C(V_1 + V_B)}{1 + 2CRj\omega}, V_B = \frac{j\omega C(V_A + V_S)}{1 + 2CRj\omega}$$

Encuite, on peut obtenir la fonction de transfert:

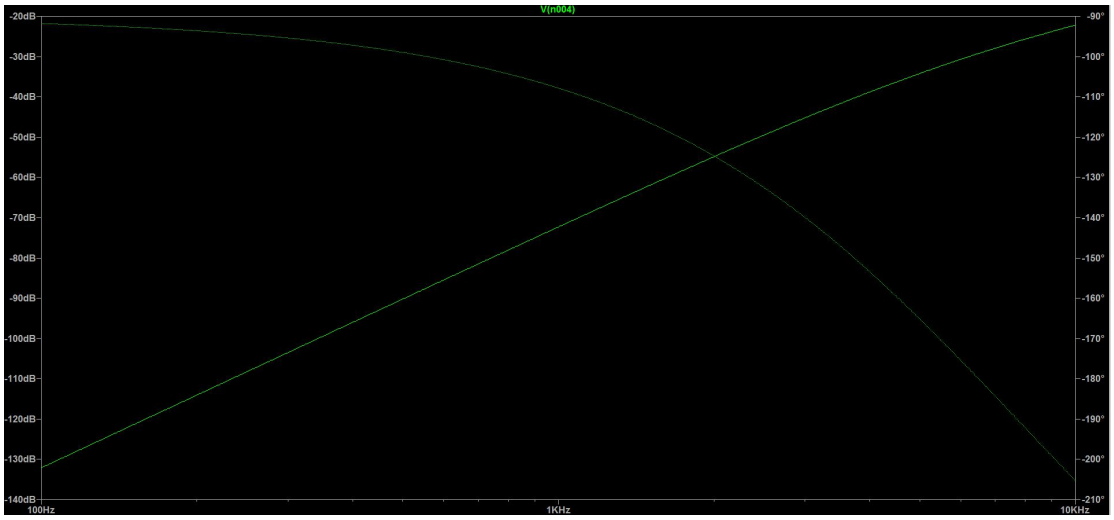
$$H = -\frac{R_2}{R_1}$$

2.

Le circuit:

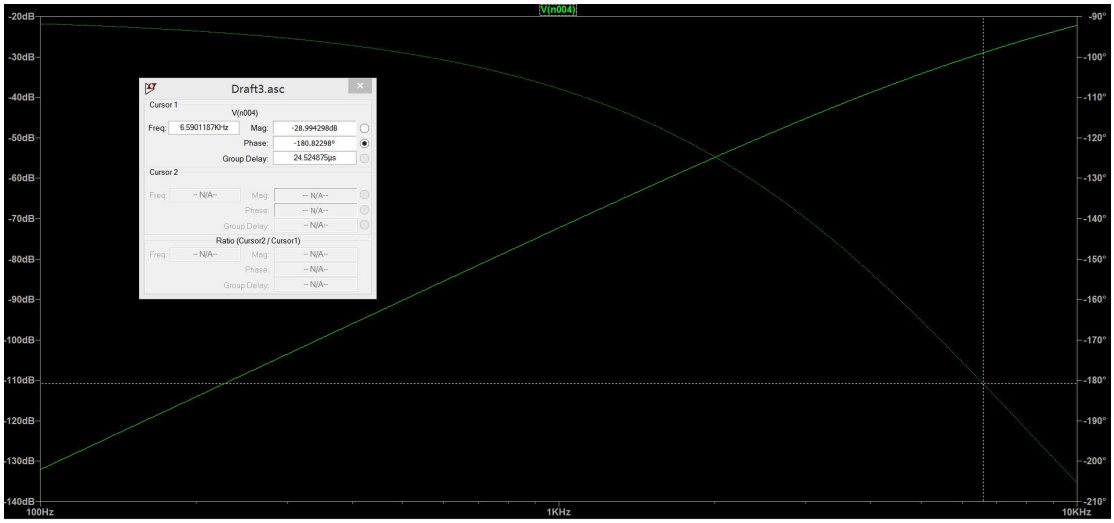


La résultat:



3.

Par la résultat de la question 2. On peut obtenir F0 = 6.5 KHz, A0 = 29.



4.

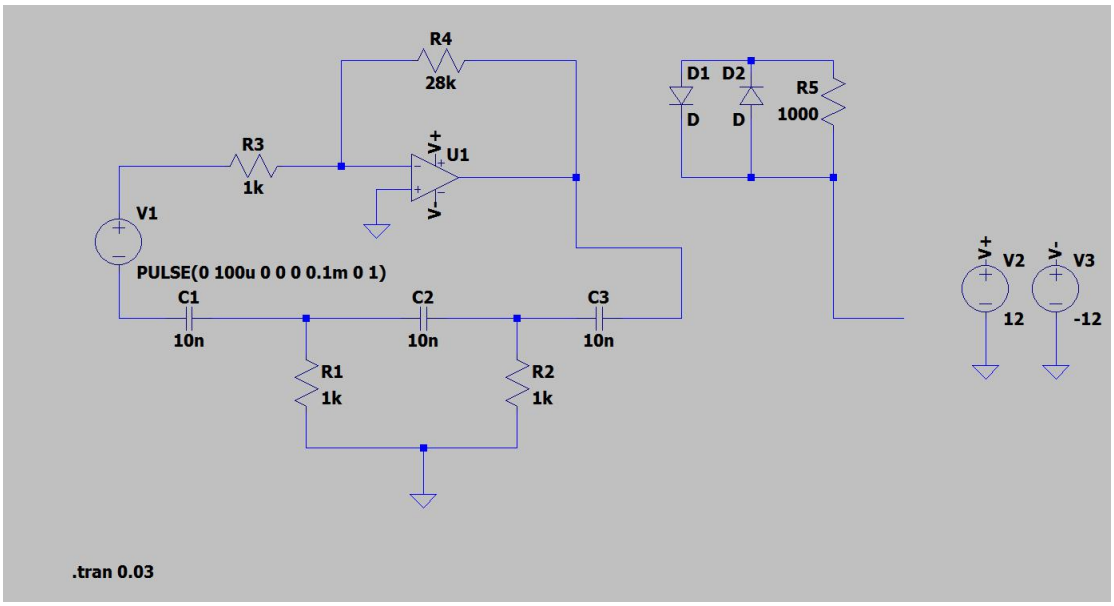
Par le cours, on a

$$S(\omega_0) = \left| \frac{d\varphi(\beta(j\omega))}{d(\omega/\omega_0)} \right|_{\omega=\omega_0}$$

D'après avoir calculé la pente, on trouve que $S(\omega_0) = 1.02$, presque 1. Donc, on pense que c'est stable.

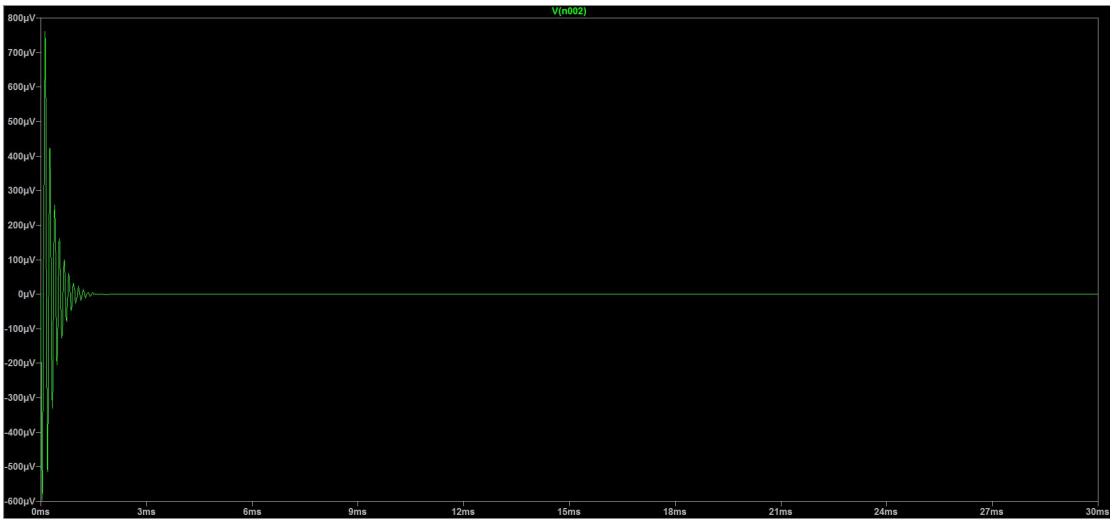
5.

Le circuit:

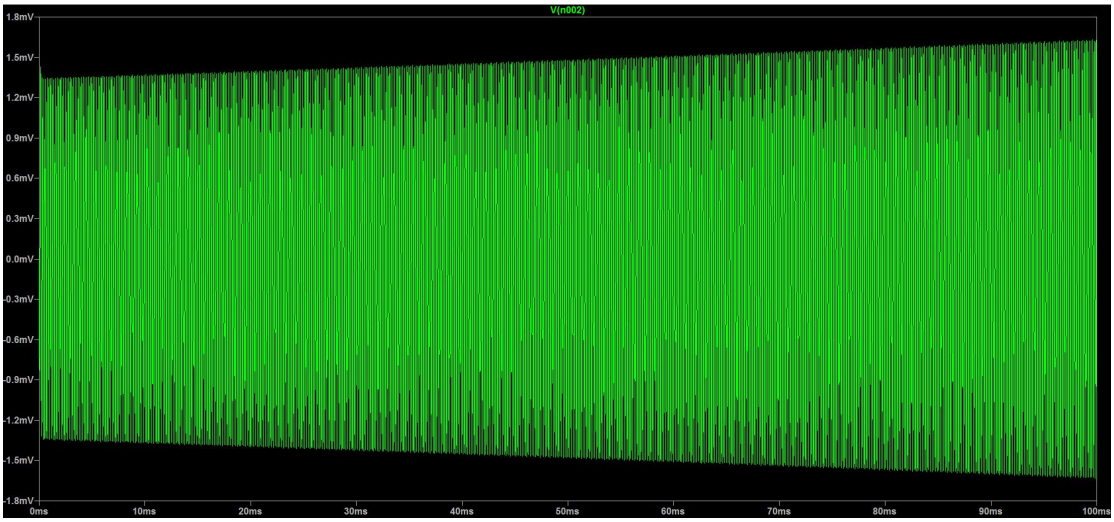


6.

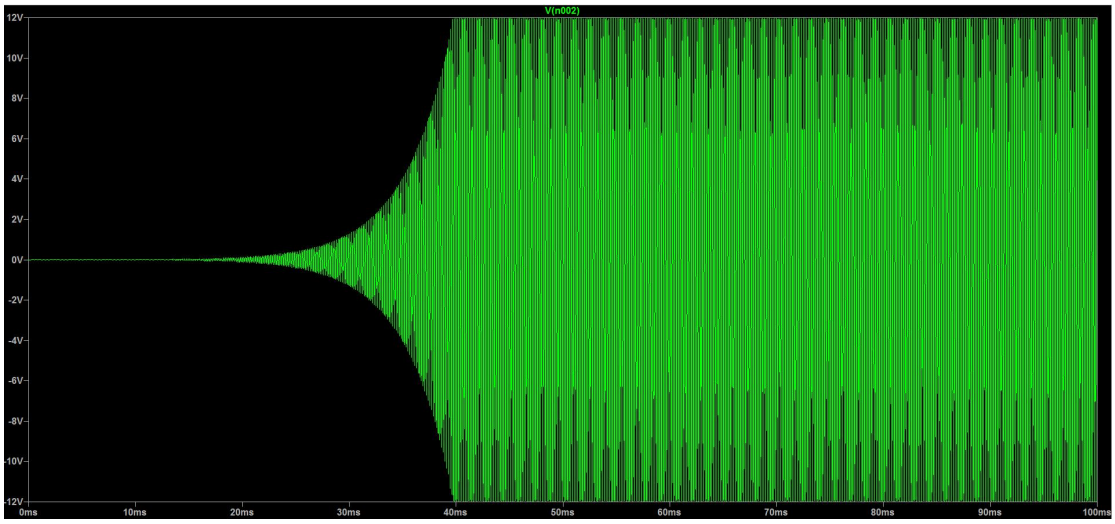
1) Quand R2<29KΩ, soit R2=20KΩ:



2) Quand R2=29.1KΩ:

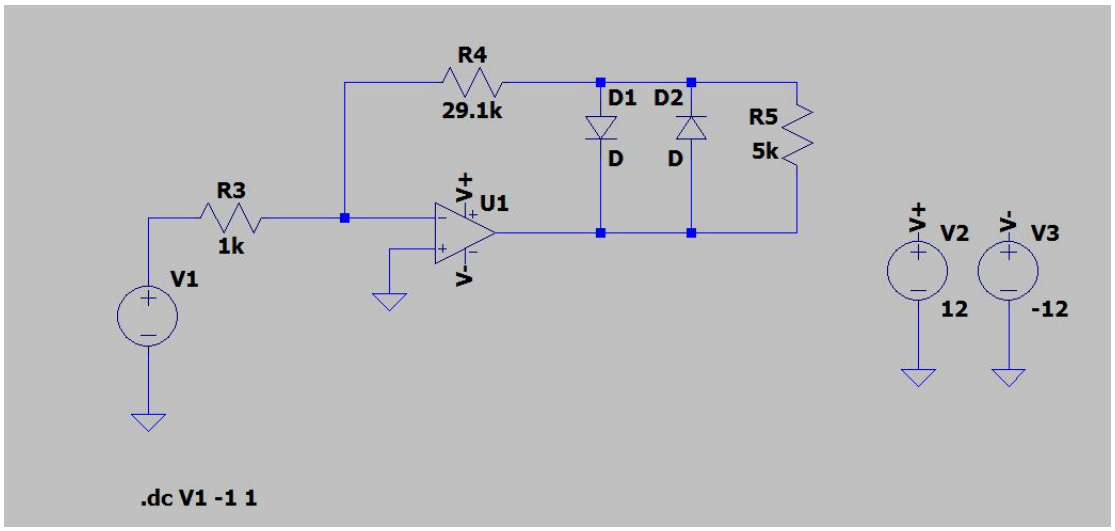


3) Quand R2>29KΩ, soit R2=30KΩ:



7.

Le circuit:



8.

La résultat: On peut voir la non-linéarité facilement.