2) Filtre du premier ordre

```
close all;
clear all;

N=100;
Te=1/10;Fe=1/Te;

t=(0:N-1)*Te; f=(0:N/2)*Fe/N;

a= input ('a=');
b = input('b=');
num=[1 -b];

den=[1 -a];

imp= zeros(1,N); imp(1)=1;
ind=ones(1,N);


%reponse imp et ind avec le filtrage
rep_imp= filter(num,den,imp);
rep_ind= filter(num,den,ind);

figure(1)
subplot(2,1,1)
plot(t,rep_imp);
title('la reponse impul')
xlabel('temps');
ylabel('reponse imp');




subplot(212)
plot(t,rep_ind);
title('la reponse indic')
xlabel('temps');
ylabel('reponse ind');
close all;
clear all;

N=100;
Te=1/10;Fe=1/Te;

t=(0:N-1)*Te; f=(0:N/2)*Fe/N;

a= input ('a=');
b = input('b=');
num=[1 -b];

den=[1 -a];
```

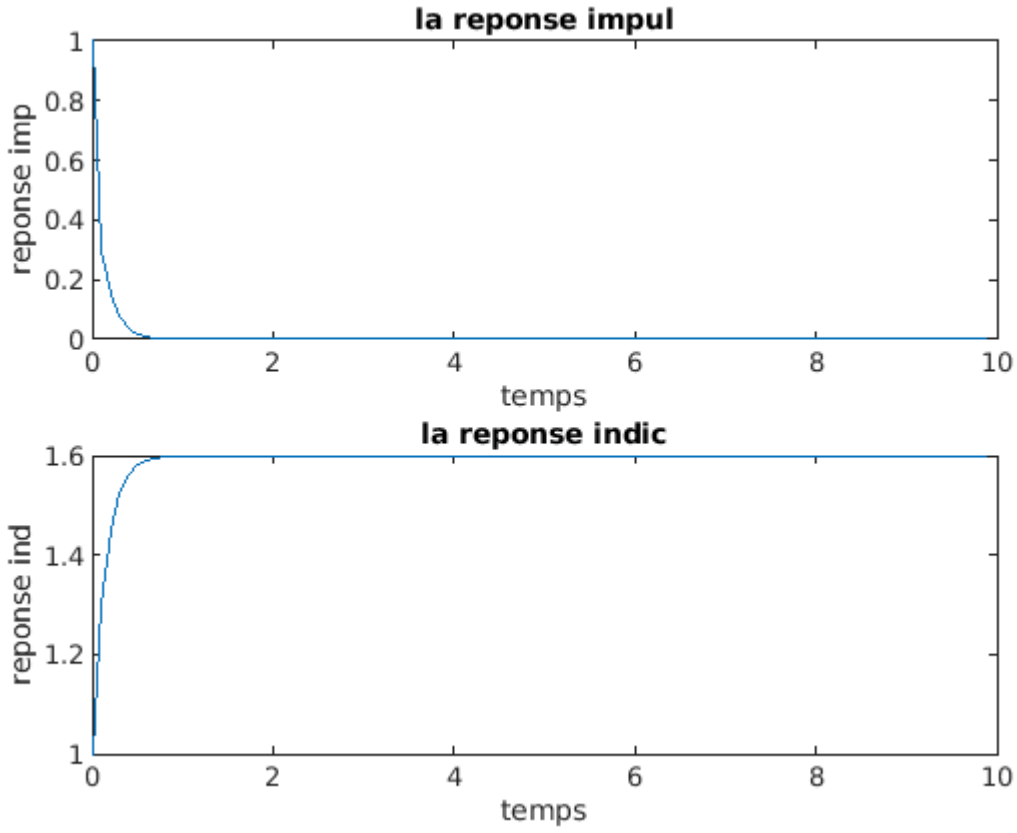
```
imp= zeros(1,N); imp(1)=1;
ind=ones(1,N);


%reponse imp et ind avec le filtrage
rep_imp= filter(num,den,imp);
rep_ind= filter(num,den,ind);

figure(1)
subplot(2,1,1)
plot(t,rep_imp);
title('la reponse impul')
xlabel('temps');
ylabel('reponse imp');




subplot(212)
plot(t,rep_ind);
title('la reponse indic')
xlabel('temps');
ylabel('reponse ind');
```




```
figure(3)
zplane(num,den)
```

```
title('position de zero et pole dans le plan complexe');
xlabel ('Reel');
ylabel ('Imaginaire');
```