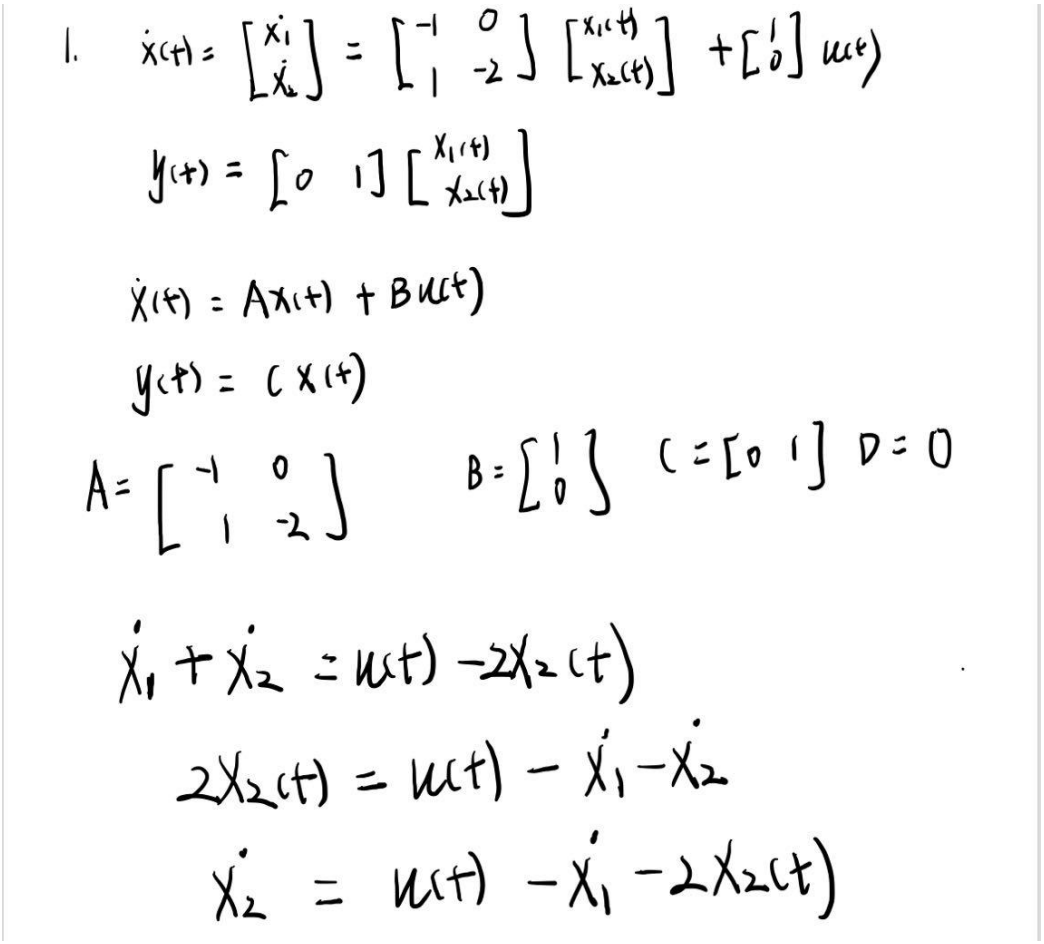
1.

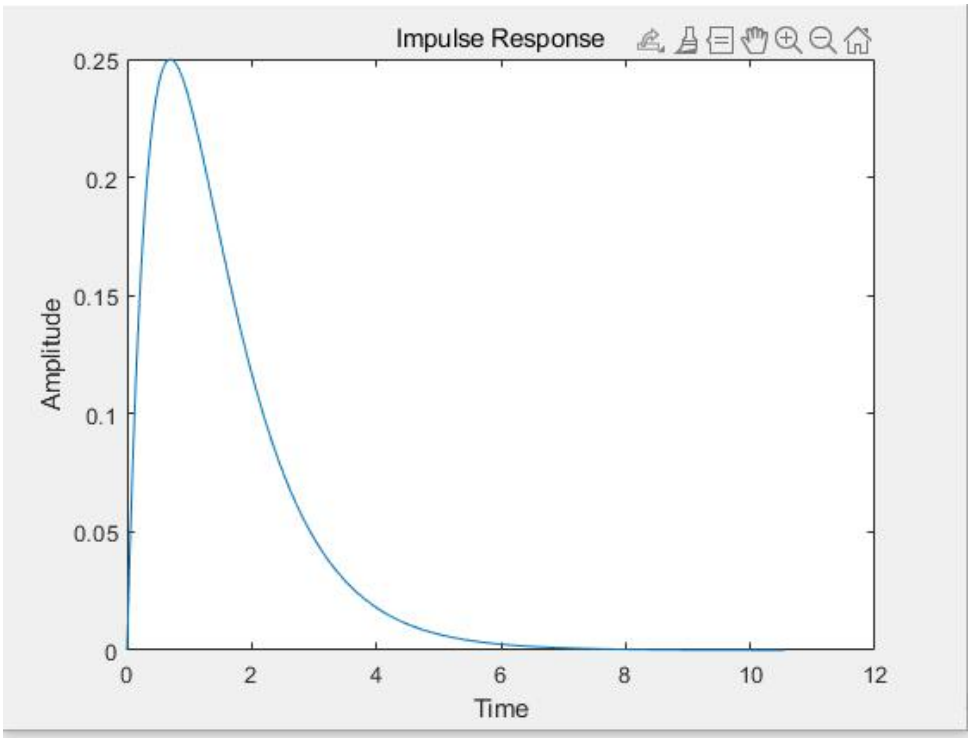


2 .

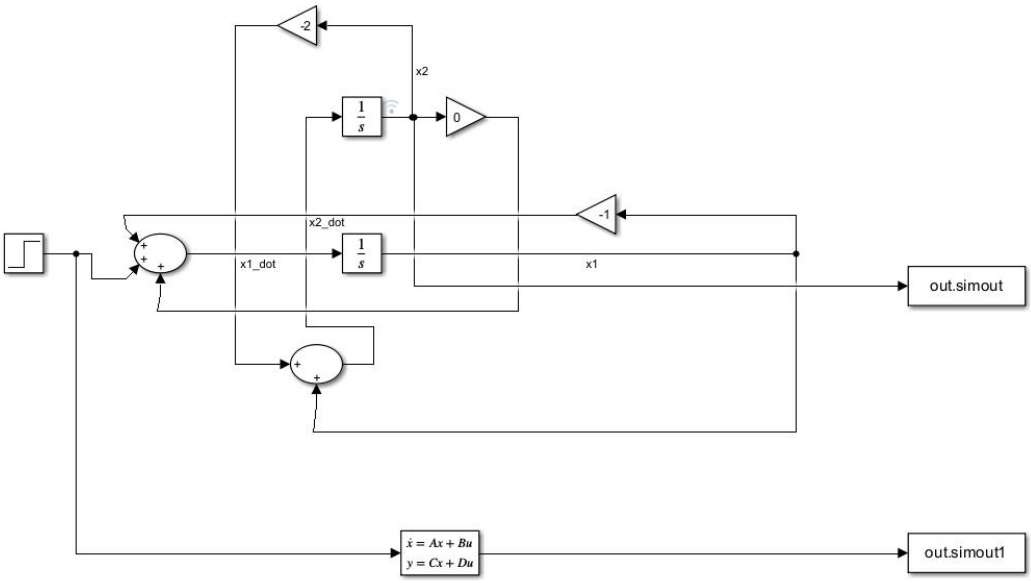
.

These are my Matlab Codes for the second point, i Plot the Impulse response and i will plot the step response together

```
A=[-1,0;1,-2];
B=[1;0];
C=[0,1];
D=0;

sys = ss(A,B,C,D);
s1=tf(sys)

t1=0:0.1:1;
t2=0;
[ste,t1]=step(sys);
[imp,t2]=impulse(sys);


plot(t2,imp)
xlabel('Time');
ylabel('Amplitude');
title('Impulse Response');
```



3. The Simulink model of the process



The out.simout use integrators and the out.simout1 use the Simulink's State Space block. The result are stored in MATLAB output variable for plotting the results. I use different colors and format to prove the three reults are identical.

```
plot(t2,imp)
xlabel('Time');
ylabel('Amplitude');
title('Impulse Response');

figure
plot(t1, ste, 'b-');
xlabel('Time');
ylabel('Amplitude');
title('Step Response');
hold on;

plot(out.simout, 'g--');

plot(out.simout1, 'ro');

legend('Step Response', 'simout', 'simout1');
```