Tema curs 6
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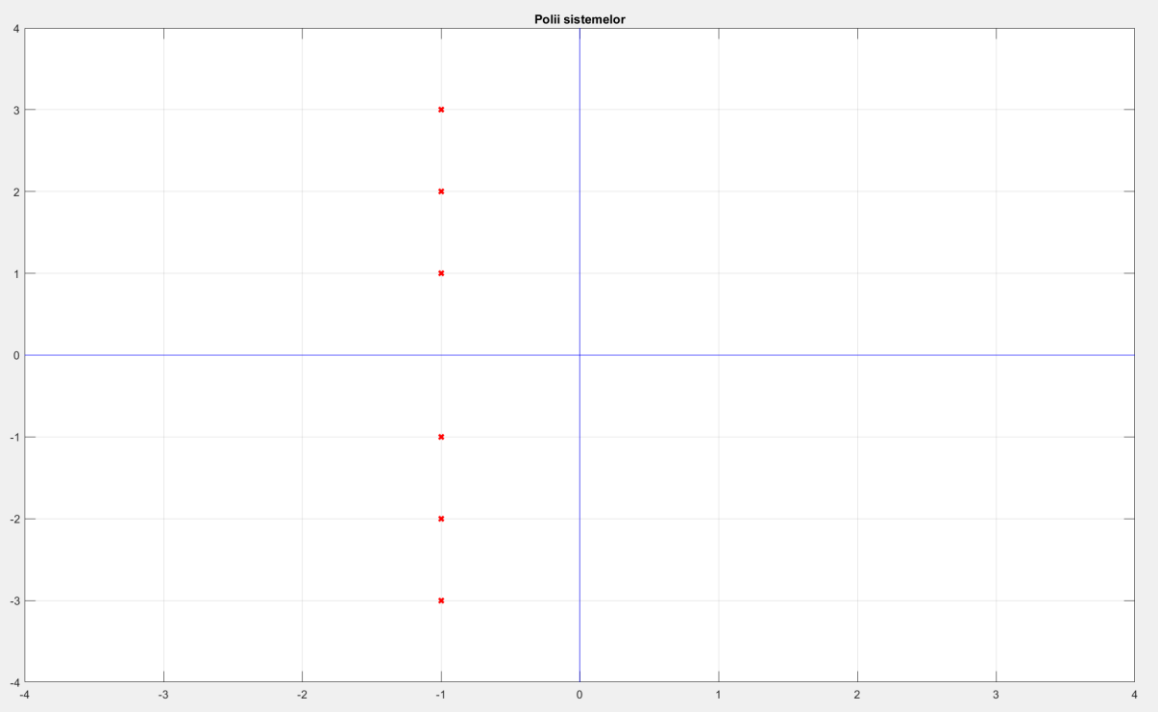
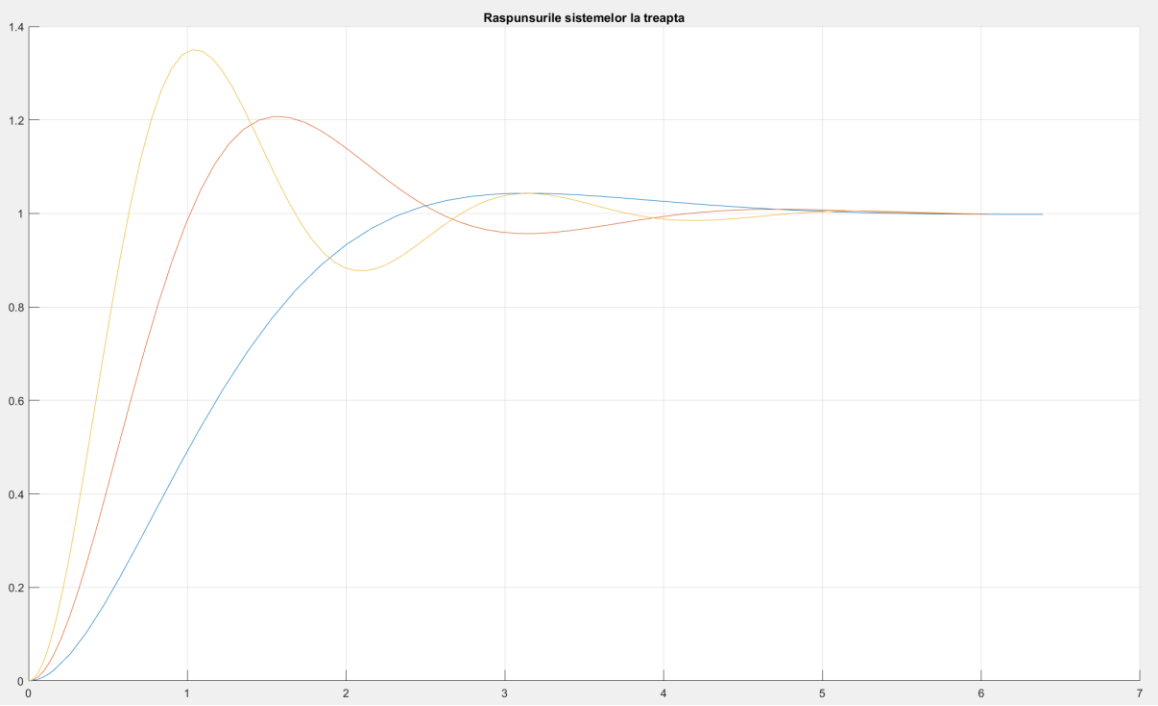
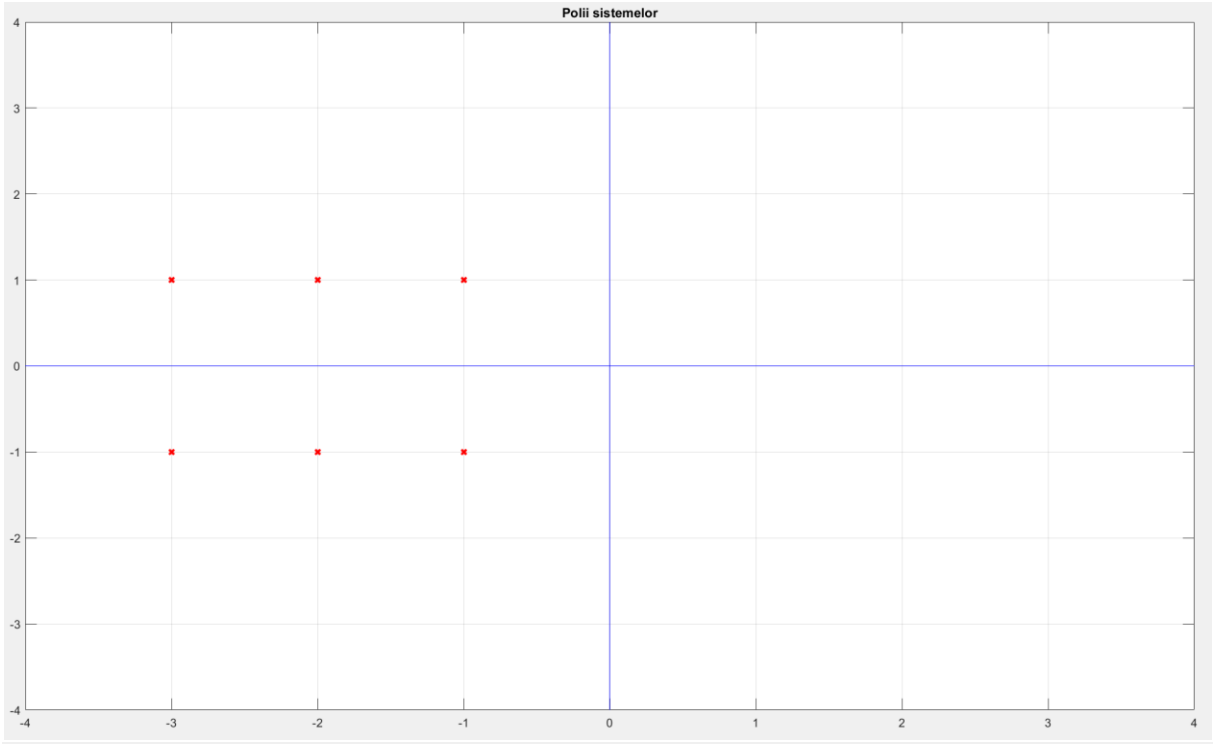
Reprezentarea raspunsurilor la treapta a mai multor sisteme cunoscand polii sistemelor:

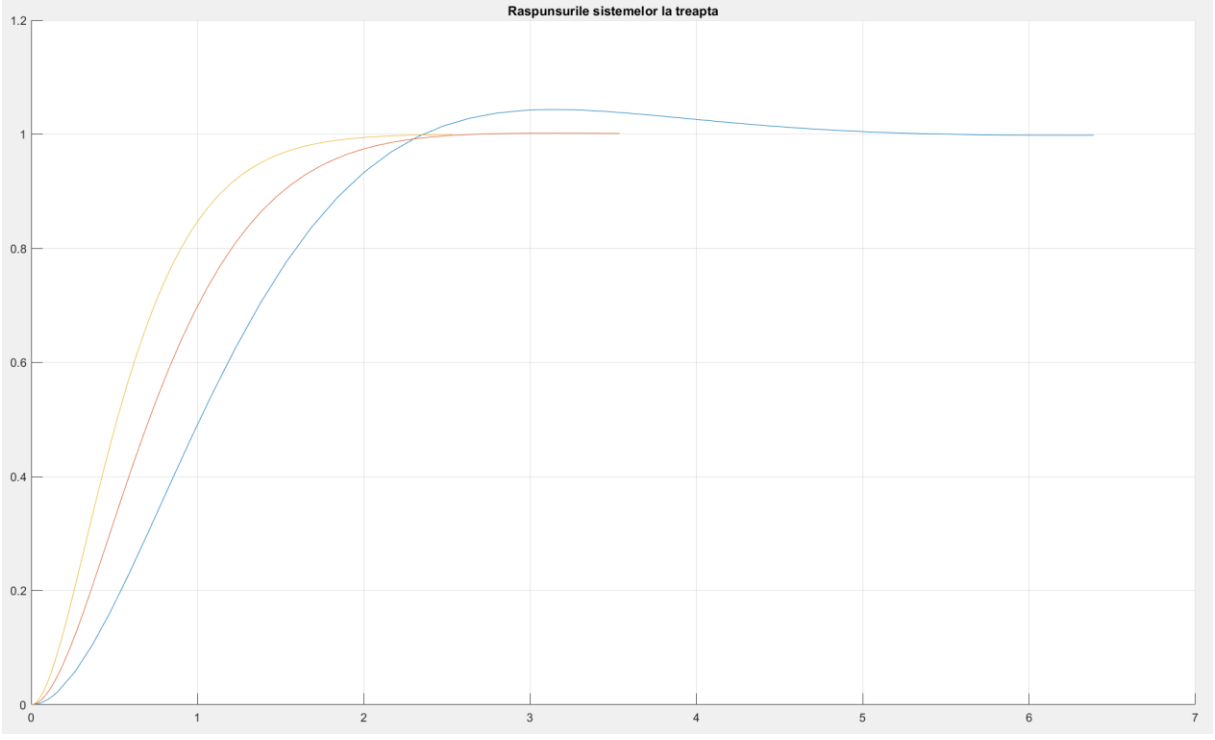
```
k = 2;

switch k
    case 1
        S1 = [ -1+1j , -1-1j];
        S2 = [ -1+2j , -1-2j];
        S3 = [ -1+3j , -1-3j];
    case 2
        S1 = [ -1+1j , -1-1j];
        S2 = [ -2+1j , -2-1j];
        S3 = [ -3+1j , -3-1j];
    case 3
        S1 = [ -1+1j , -1-1j];
        S2 = [ -2+2j , -2-2j];
        S3 = [ -3+3j , -3-3j];
end

%%
S = [S1, S2, S3];

n = length(S)/2;
figure(1); hold on;

for i = 1:n

    p = S(2*i-1:2*i);
    tita = cos(angle(p(1)));
    wn = abs(p(1));
    tr = 1.5 * log(0.02 * sqrt(1 - tita^2))/tita/wn;
    num = poly(p);
    [A,B,C,D] = tf2ss(wn^2,num);
    sys = ss(A,B,C,D);

    f = @(t,x)(A*x + B * 1);
    [t,x] = ode45(f,[0 tr],zeros(length(A(1,:)),1));
    y = C *x.' + D * 1;
    plot(t,y); grid; title("Raspunsurile sistemelor la treapta");

end
```

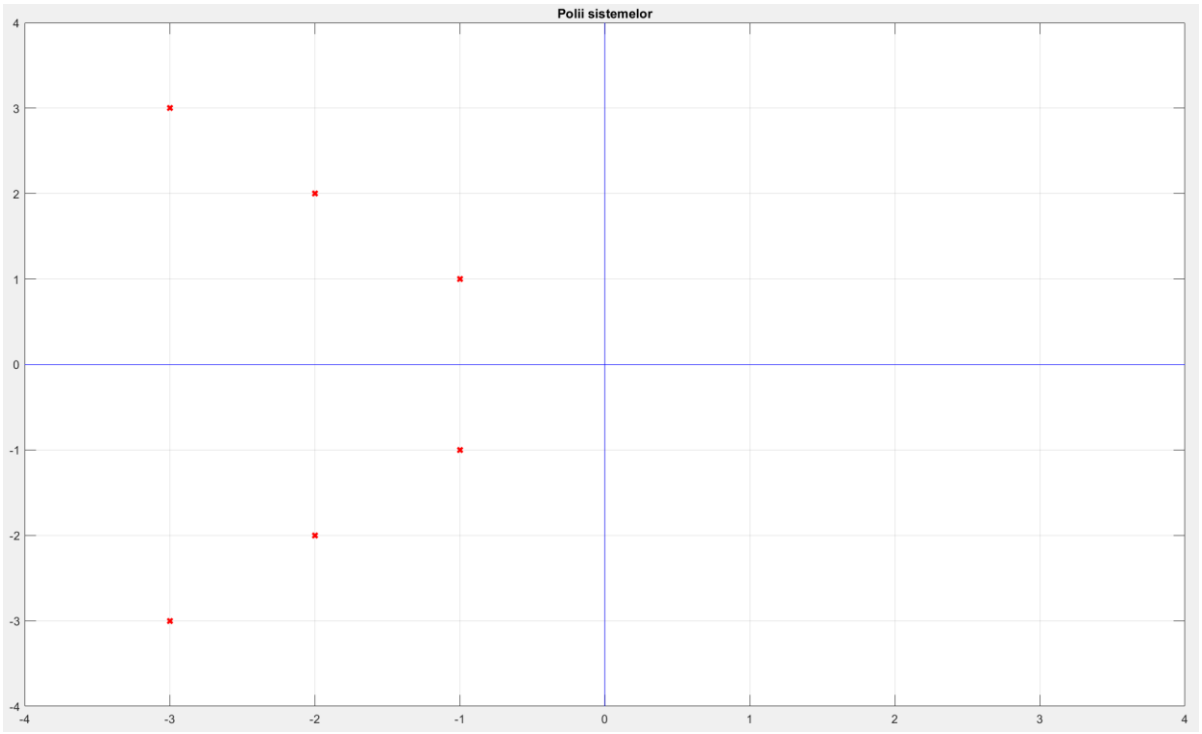
```
%%

figure(2);
plot([0 0], 4*ylim, 'b'); hold on;
plot([0 0], -ylim, 'b'); hold on;
plot(4*xlim,[0 0], 'b'); hold on;
plot(S,'rx','LineWidth',2); grid; title("Polii sistemelor");
```

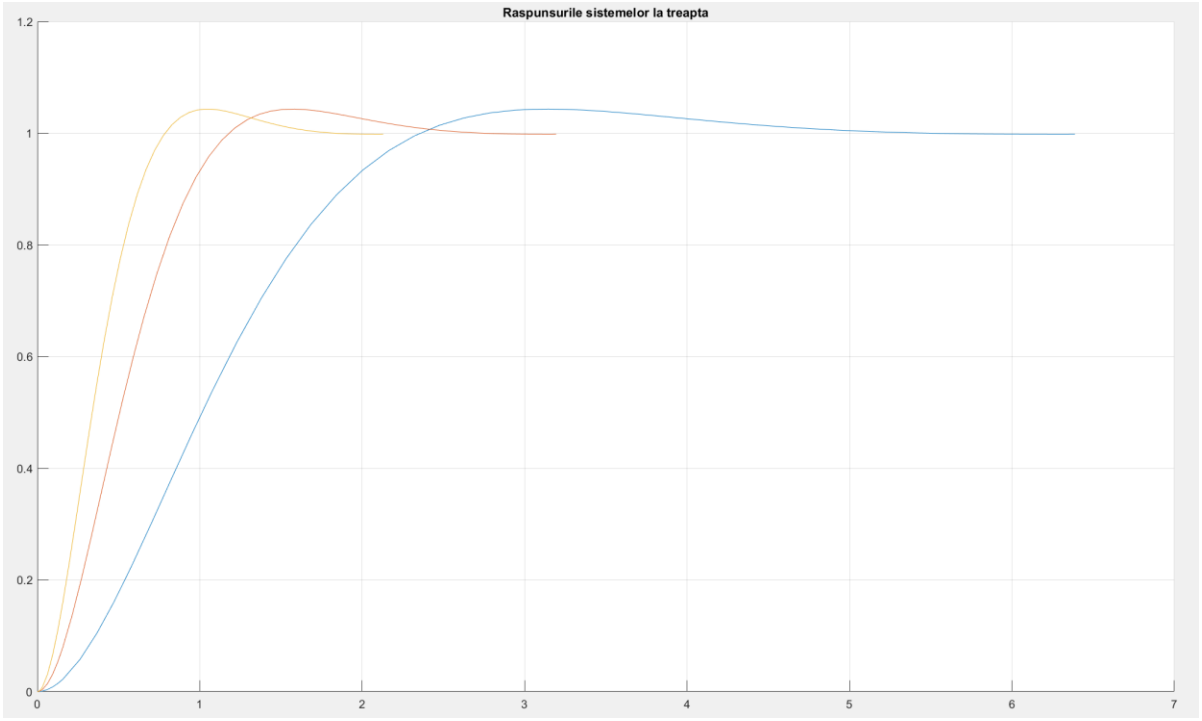





Polii sistemelor
4
3
2
1
0
-1
-2
-3
-4
-4
-3
-2
-1
0
1
2
3
4


Raspunsurile sistemelor la treapta
1.2
1
0.8
0.6
0.4
0.2
0
0
1
2
3
4
5
6
7


Polii sistemelor
4
3
2
1
0
-1
-2
-3
-4
-4
-3
-2
-1
0
1
2
3
4


Raspunsurile sistemelor la treapta
1.2
1
0.8
0.6
0.4
0.2
0
0
1
2
3
4
5
6
7