Tema 1

***tema.m***

```
clc
clear all
close all

%% 1.b
t = -10:1:10;
y = zeros(size(t));

for i = 1:length(t)

    if((t(i) >= -10 & t(i) < -4) | (t(i) >= 4 & t(i) <= 10))
        y(i) = sin(t(i));
    elseif(t(i) >= -4 &  t(i) < 4)
        y(i) = abs(cos(2.*t(i)));
    end

end

%% 1.d
n = 1:1:100;
x = zeros(size(n));

for i = 1:length(n)

    x(i) = (1 + 1 ./ n(i)) .^ n(i);

end

%% afisarea
figure(1)
subplot(2,1,1);
plot(t,y);
grid on;
axis tight;
title('1.b');

subplot(2,1,2);
stem(n,x);
grid on;
axis tight;
title('1.d');

mesaj1 = sprintf("Factorialul lui %d este: %d\n",5,factorial(5));
fprintf(mesaj1);

suma(5);

mesaj2 = sprintf("Rezultatul calculului f(%d)/g(%d) este egal cu:
%d\n",100,10,f(100)/g(10));
```

```
fprintf(mesaj2);

[x1,y1,z1] = sel(-1,2,3,5,-1,2,-4,-1,2,-6,9,0);
mesaj3 = sprintf("Solutia sistemului este: x = %d ; y = %d ; z = %d\n",x1,y1,z1);
fprintf(mesaj3);
```

***factorial.m***

```
function [x] = factorial(n)

x = 1;

for i=2:n

    x = x * i;

end
```

***suma.m***

```
function [x] = suma(n)

x = 0;

for i = 0:1:n

    if( i == 0 ) x = x + 1;
    else x = x + 1/ factorial(i);
    end

end

mesaj = sprintf("Suma x(%d) este: %d\n",n,x);
fprintf(mesaj);

end
```

***f.m***

```
function y = f(x)

y = 3 * x ^ 3 + 2 * x ^ 2 + x;

end
```

***g.m***

```
function y = g(x)

y = exp(x)  - 2 * x + 3;

end
```

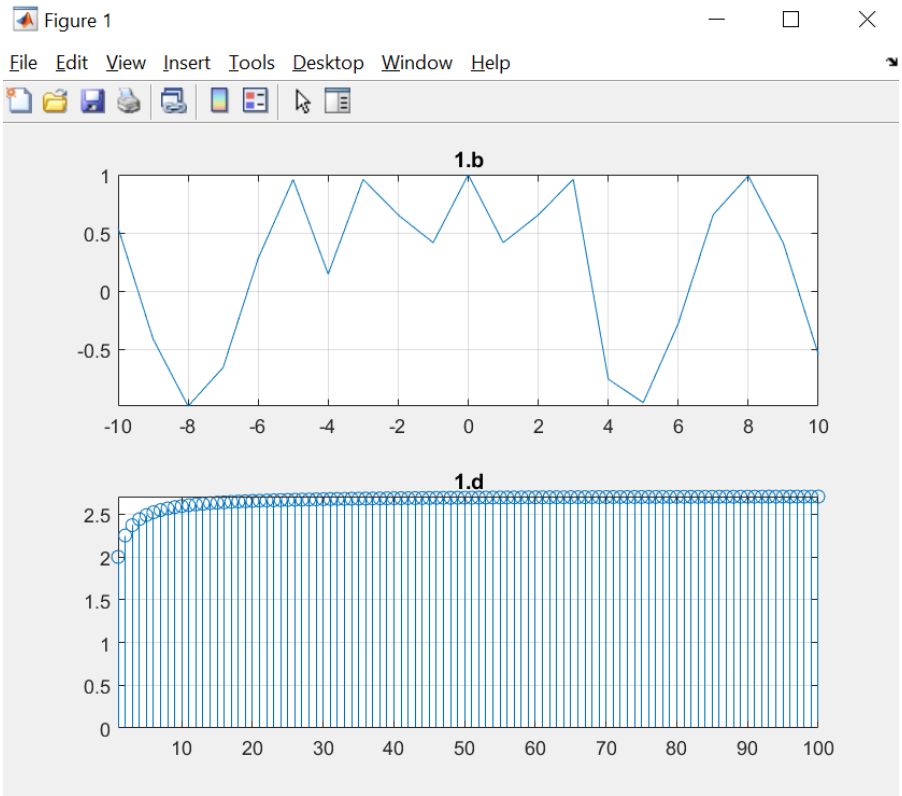
***sel.m***

```
function [x,y,z] = sel(a1,b1,c1,a2,b2,c2,a3,b3,c3,a0,b0,c0)

A = [a1 b1 c1; a2 b2 c2; a3 b3 c3];

if(det(A) ~= 0)
    Ax = [a0 b1 c1; b0 b2 c2; c0 b3 c3];
    Ay = [a1 a0 c1; a2 b0 c2; a3 c0 b3];
    Az = [a1 b1 a0; a2 b2 b0; a3 b3 c0];
    x = det(Ax)/det(A);
    y = det(Ay)/det(A);
    z = det(Az)/det(A);
end

end
```




```
Factorialul lui 5 este: 120
Suma x(5) este: 2.716667e+00
Rezultatul calculului f(100)/g(10) este egal cu: 1.372182e+02
Solutia sistemului este: x = 1 ; y = -2.142857e+00 ; z = 4.285714e-01
```