

Prvi zadatak

tablica.m

```
type tablica.m
```

```
X=[100 121 144];  
Y=[10 11 12];
```

```
type novatablica.m
```

```
tablica;  
X1=zeros(1, length(X)*2-1);  
Y1=zeros(1, length(Y)*2-1);  
j=1;  
for i=1:2:length(X)*2-1  
    X1(i)=X(j);  
    Y1(i)=Y(j);  
    j=j+1;  
end  
j=1;  
for i=2:2:length(X)*2-1  
    X1(i)=(X(j)+X(j+1))/2;  
    Y1(i)=(Y(j)+Y(j+1))/2;  
    j=j+1;  
end  
  
%X  
%X1 ovo moze da im ubacis kasnije kao ispis da vide sta je tablica X1
```

```
type Lagr1.m
```

```
function L=Lagr1(x)  
novatablica;  
L=0;  
for i=1:length(X1)  
    p=1;  
    for j=1:length(X1)  
        if i~=j  
            p=p*(x-X1(j))/(X1(i)-X1(j));  
        end  
    end  
    L=L+p*Y1(i);  
end
```

```
L=Lagr1(115)
```

```
L =  
10.7185
```

```
sqrt(115)
```

```
ans =  
10.7238
```

Drugi zadatak

```
type funkcija.m
```

```
f=@(x) 1./(1+x.^2);
```

```
type tablica2.m
```

```
function [X,Y]=tablica2(a,b,n)
funkcija;
X=linspace(a,b,n);
Y=f(X);
```

```
type Lagr1b.m
```

```
function [L, y] = Lagr1b(x, a, b, n)
[X,Y]=tablica2(a,b,n);
L=0;
for i=1:n
    p=1;
    for j=1:n
        if i~=j
            p=conv(p,[1,-X(j)])/(X(i)-X(j));
        end
    end
    L=L+p*Y(i);
end
y=polyval(L,x);
```

```
[L,y]=Lagr1b(0.5,0,1,3) % interpolacioni polinom je tacan za cvorove
interpolacije, ovde je 0.5 bas cvor.
```

```
L = 1×3
    -0.2000    -0.3000     1.0000
y =
    0.8000
```

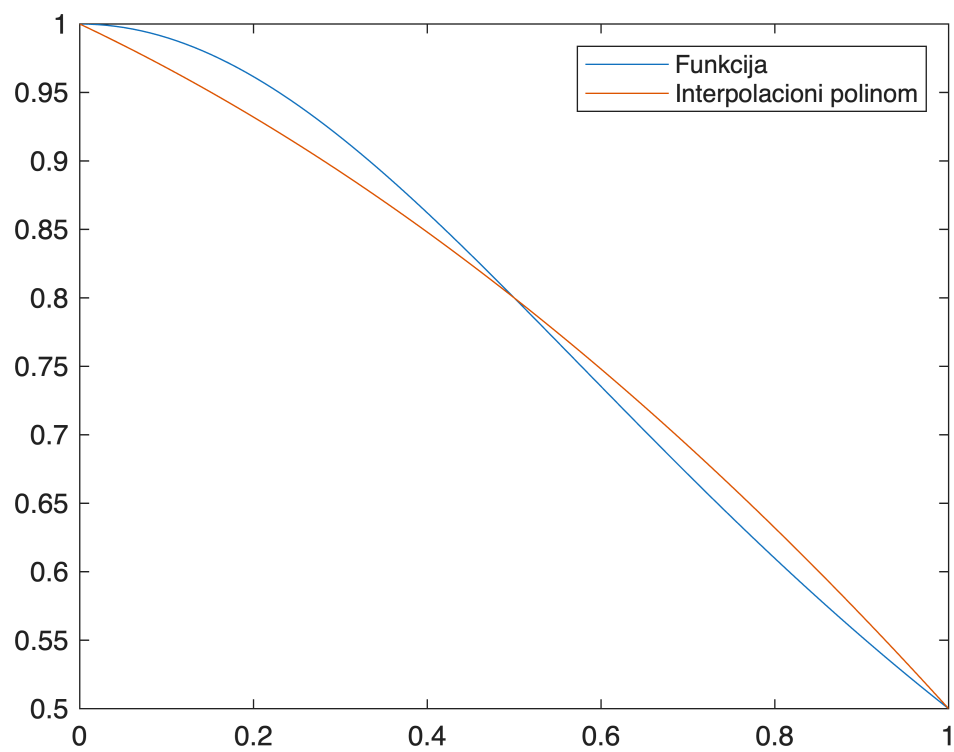
```
[L,y]=Lagr1b(0.55,0,1,5)
```

```
L = 1×5
    -0.2635     1.0729    -1.3482     0.0388     1.0000
y =
    0.7679
```

```
type grafik.m
```

```
function grafik(x,a,b,n)
funkcija;
[L,y]=Lagr1b(x,a,b,n);
xx=linspace(a,b);
plot(xx,f(xx),xx,polyval(L,xx));
legend('Funkcija','Interpolacioni polinom')
```

```
grafik(0.5,0,1,3)
```



grafik(0.55,0,2,5) % cvorovi su 0,0.5,1,1.5,2

