

Rešenja ispitnih zadataka iz Programskih paketa u matematici, 17.6.2020.

1. 16 poena

$x = [7,7,7,7]$, $y = [6,7,8,9]$, $w = 3$, $z = 2$, $v = 8$

- a) $[0,0,0,0]$ 2p
- b) $[0,0,1,0]$ 2p
- c) $[10 \ 10.5 \ 11 \ 11.5]$ 2p
- d) 12 2p
- e) 10 2p
- f) $[2,6,10]$ 2p
- g) $a = [\ 3 \ 2 \ 8 \ 2]$ 1p

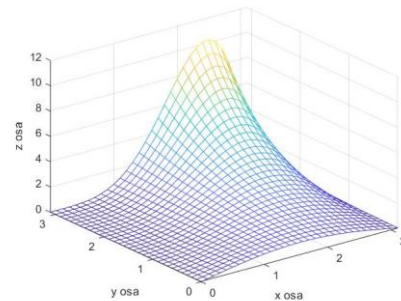
- 3 7
 - 2 7
 - 8 7
 - 2 7
- h) $1 \ 0 \ 1 \ 1$ 3p

2. 10 poena

- a) $2 \ 2 \ 4 \ 7 \ 4 \ 7$ 2p
- b) $[1 \ 1]$ 2p
- c) $[7 \ 9 \ 6]$ 2p
- d) $[6 \ 5 \ 7 \ 1 \ 0 \ 0 \ 0]$ 2p
- e) $[B(:,2:3), A(2:3,1:2)]$ 2p

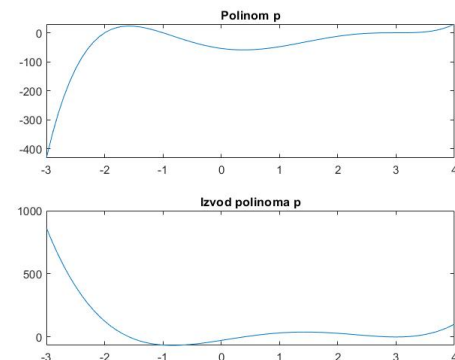
3. 7 poena

```
x = 0:0.1:pi; 1p
y = 0:0.1:pi;
[X,Y] = meshgrid(x,y) 2p
Z = X.^Y.*sin(X); 2p
mesh(X,Y,Z) 1p % ili surf(X,Y,Z)
xlabel('x osa') 1p
ylabel('y osa')
zlabel('z osa')
```



4. 10 poena

```
p = poly([3,3,3,-1,-2]) 2p
pp = polyder(p) 2p
subplot(2,1,1) 1p
x = -3:0.1:4; 1p
y = polyval(p,x); 2p
plot(x,y) 1p
title('Polinom p') 1p
subplot(2,1,2)
y1 = polyval(pp,x);
plot(x,y1)
```



title('Izvod polinoma p')

5. 19 poena

sneg = [5.6 2.1 7.8 10.4 15.5 25.8 35.2 58 89.5 66 52.3 44 21 10.8]

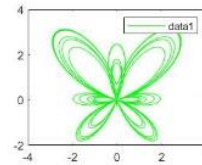
- a) mean(sneg) 3p
- b) sum(sneg>mean(sneg)) 3p
- c) sortirano = sort(sneg)
mean(sortirano(1:3)) 3p
- d) p = polyfit(1:length(sneg),sneg,2) 5p

p = -1.1038 19.5479 -34.8709 % do istog rezultata mogu doći i preko toolbox-a basic fitting bez gornje komande, ali moraju biti sacuvani koeficijenti ili slika na kojoj se vide koeficijenti.

- e) roots(p) 5p
Odgovor: posle 16 nedelja

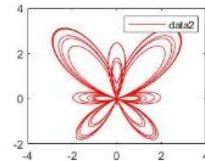
6. 8p za funkciju

```
function [x,y] = leptir(t)
x = sin(t).*(exp(cos(t))-2*cos(4*t)-(sin(t/12)).^5);
y = cos(t).*(exp(cos(t))-2*cos(4*t)-(sin(t/12)).^5);
end
```



10 za ostalo

```
t = 0:0.01*pi:12*pi;
[x,y] = leptir(t);
subplot(2,2,1)
plot(x,y,'g')
subplot(2,2,4)
plot(x,y,'r')
```



7. 9 poena

```
ymin = @(x)x.^2 2p
ymax = @(x)2*x 2p
integral2(@(x,y) x.*y./(x.^2+y.^2),0,2,ymin,ymax) 5p
```

8. 9 poena

```
yp = @(x,y) -2*x*y/(1+x^2)-(1+sqrt(1+x^2))/(1+x^2) 3p
[xres,yres] = ode45(yp,[0,3],1) 5p
plot(xres,yres) 1p
```

