Neke osnovne funkcije iz MatLab-a za rješavanje zadataka iz Analize 3 (primjeri, 3. dio)

Grafički predstavljanje krivih u ravni i prostoru

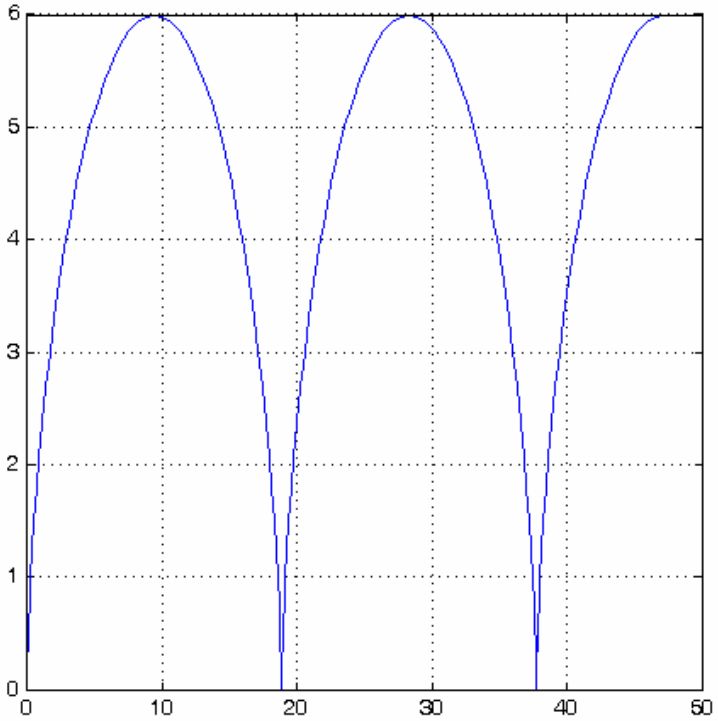
Primjer 1.

Grafički predstaviti cikloidu $x = 3(t - \sin t), y = 3(1 - \cos t)$, $0 \le t \le 5\pi$.

Rj.

rav_kriva1.m

```
t=0:pi/30:5*pi;
plot(3*(t-sin(t)),3*(1-cos(t)))
grid on
axis square
```



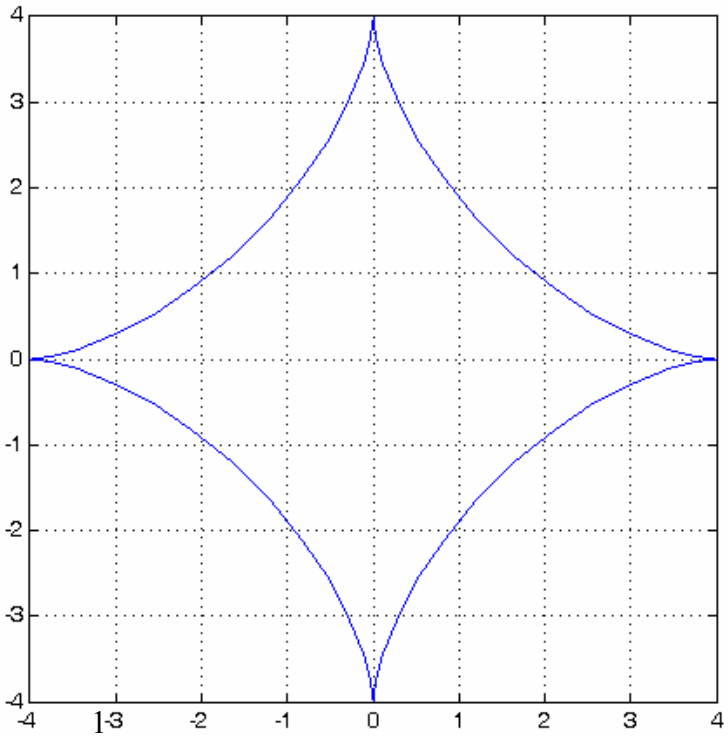
Primjer 2.

Grafički predstaviti funkciju $x = 4\cos^3 t, y = 4\sin^3 t$, $0 \le t \le 2\pi$.

Rj.

rav_kriva2.m

```
t=0:pi/30:2*pi;
plot(4*(cos(t)).^3,4*(sin(t)).^3)
grid on
axis square
```



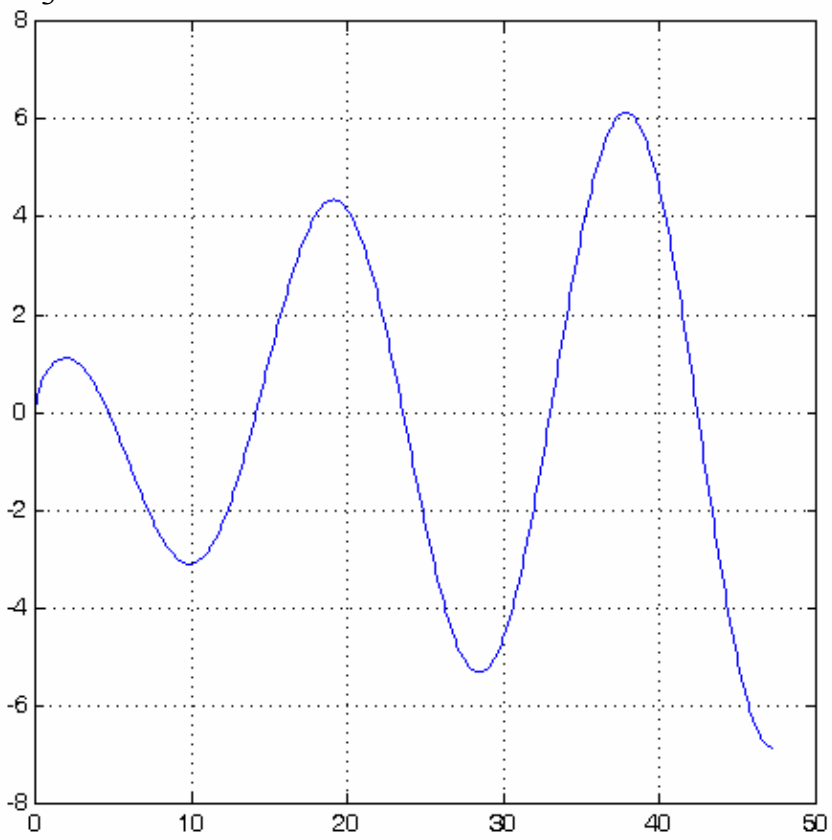
Primjer 3.

Grafički predstaviti funkciju $y = \sqrt{x}\cos\frac{1}{3}x$.

Rj.

rav_kriva3.m

```
n=0:pi/30:15*pi;
plot(n,sqrt(n).*cos(n.*(1/3)))
grid on
axis square
```



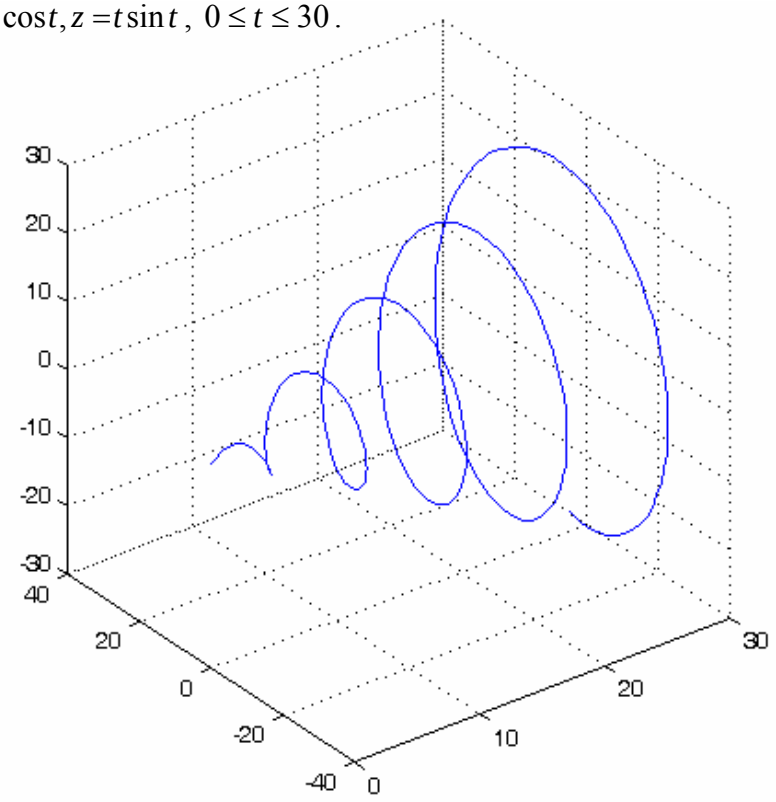
Primjer 4.

Grafički predstaviti funkciju $x = t, y = t\cos t, z = t\sin t$, $0 \le t \le 30$.

Rj.

kriva1.m

```
t=0:0.1:30;
plot3(t, t.*cos(t),t.*sin(t))
grid on
axis square
```



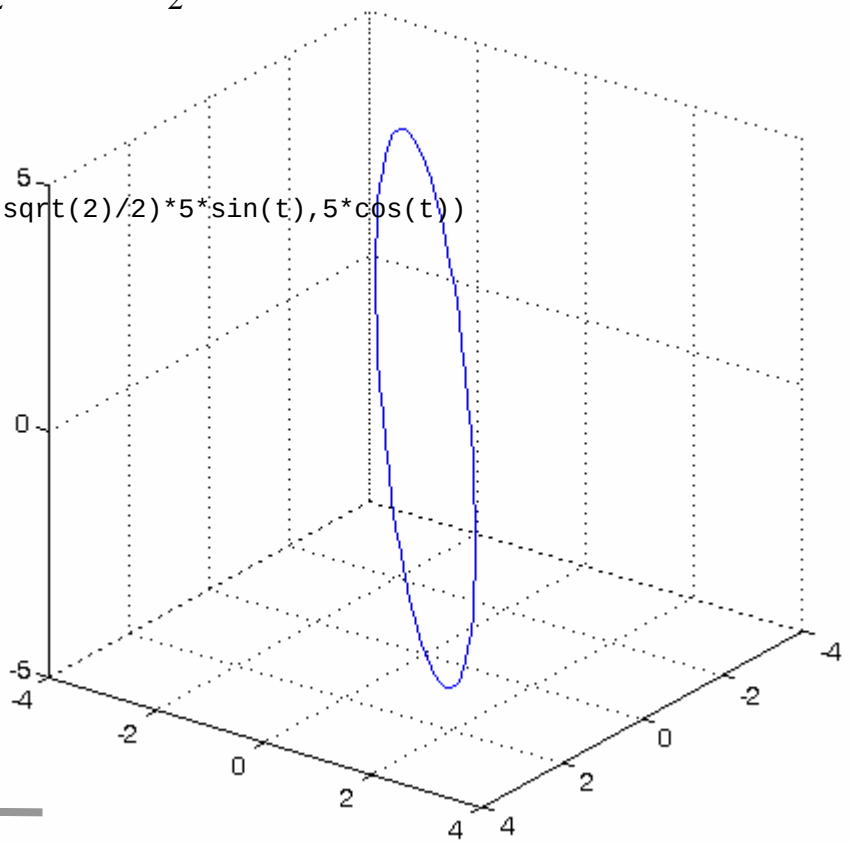
Primjer 5.

Grafički predstaviti funkciju $x = \frac{5\sqrt{2}}{2}\sin t, y = \frac{5\sqrt{2}}{2}\sin t, z = 5\cos t,\ 0 \le t \le 2\pi$.

Rj.

kriva2.m

```
t=0:pi/30:2*pi;
plot3((sqrt(2)/2)*5*sin(t), (sqrt(2)/2)*5*sin(t),5*cos(t))
grid on
axis square
```

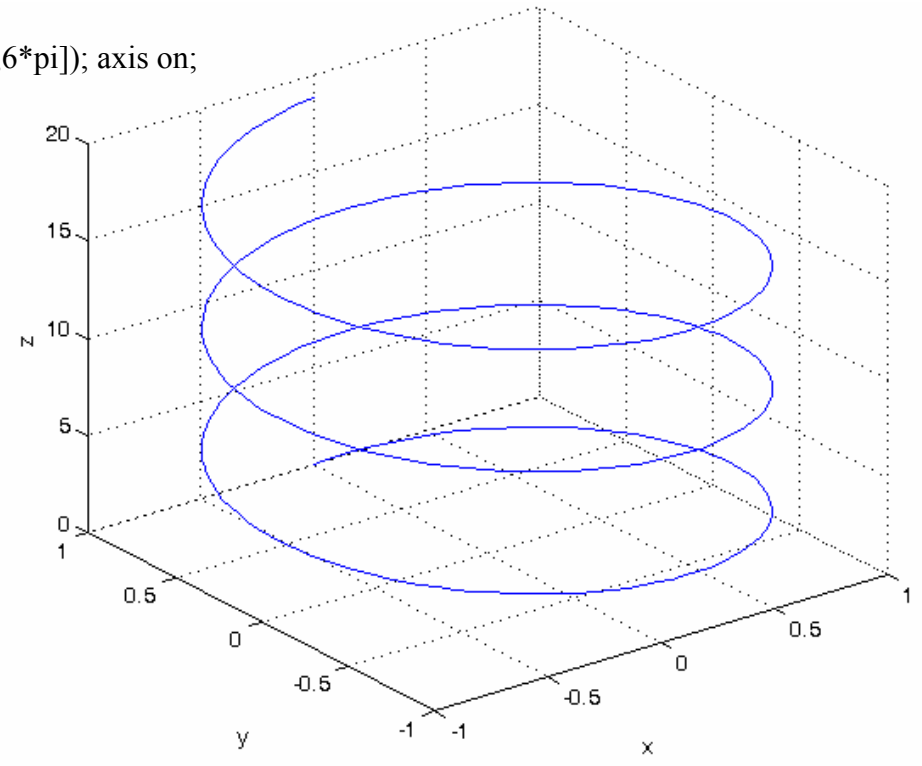


Primjer 6.

Grafički predstaviti zavojnicu (spiralu) $x = \sin t, y = \cos t, z = t,\ 0 \le t \le 6\pi$.

Rj.

>> ezplot3('sin(t)','cos(t)','t',[0,6*pi]); axis on;

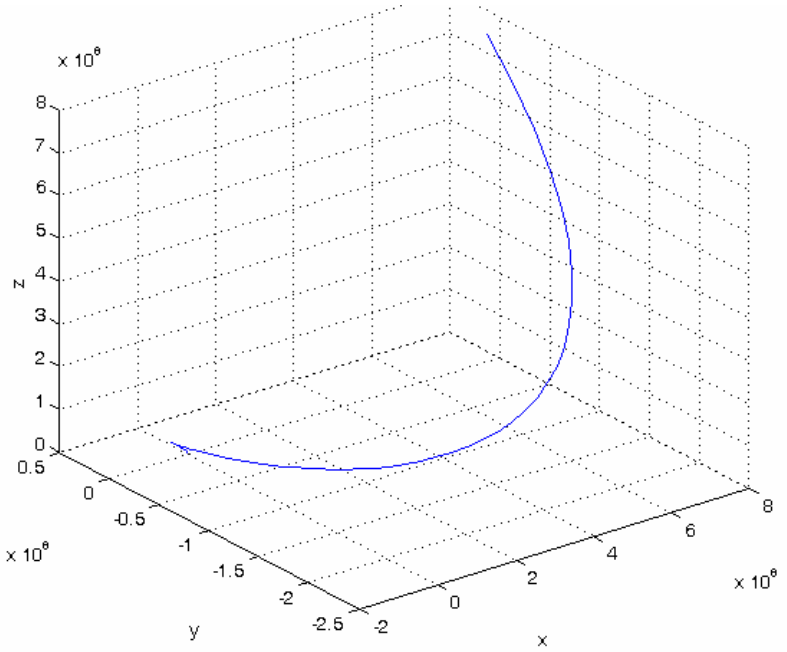


Primjer 7.

Grafički predstaviti dio čunjaste zavojnice $x = 5e^t \cos t, y = 5e^t \sin t, z = 5e^t$, $0 \le t \le 6\pi$.

Rj.

>> ezplot3('5*exp(t)*cos(t)','5*exp(t)*sin(t)','5*exp(t)',[0,6*pi]); axis on;



Primjer 8.

Grafički predstaviti pravu $\frac{x}{3} = \frac{y}{2} = \frac{z}{1}$.

Rj.

>> ezplot3('3*t','2*t','t',[-4,4]); axis on;