

```
> restart
```

```
> odes :=  
diff(x(t), t) = 2*x(t) - 3*y(t) + exp(t),  
diff(y(t), t) = x(t) + 2*y(t) + t*exp(t);
```

$$odes := \frac{d}{dt} x(t) = 2x(t) - 3y(t) + e^t, \frac{d}{dt} y(t) = x(t) + 2y(t) + te^t \quad (1)$$

```
> ics := x(0) = 1, y(0) = 0
```

$$ics := x(0) = 1, y(0) = 0 \quad (2)$$

a) obecne

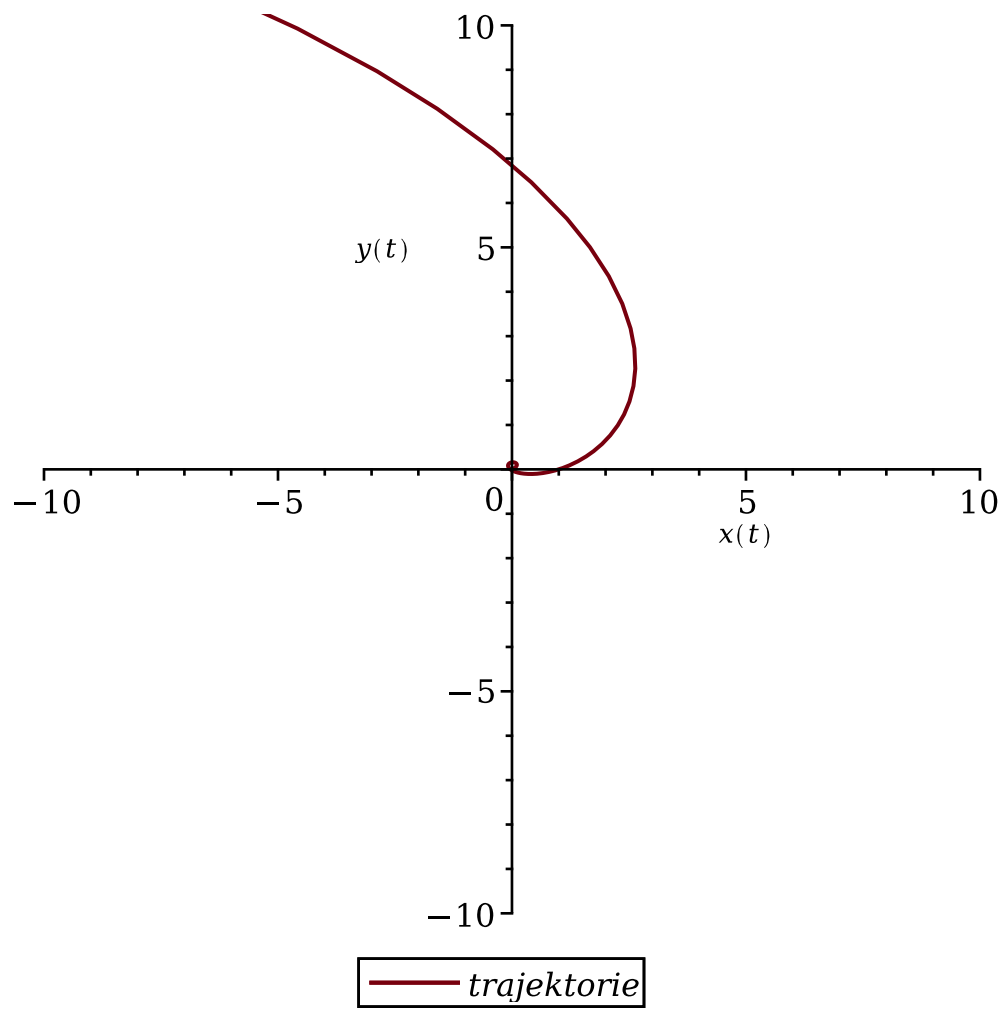
```
> dsolve([odes], [y(t), x(t)])
```

$$\left\{ x(t) = e^{2t} \sin(\sqrt{3}t) c_2 + e^{2t} \cos(\sqrt{3}t) c_1 - \frac{3te^t}{4} - \frac{5e^t}{8}, y(t) = \right. \quad (3) \\ \left. - \frac{e^{2t}\sqrt{3}\cos(\sqrt{3}t)c_2}{3} + \frac{e^{2t}\sqrt{3}\sin(\sqrt{3}t)c_1}{3} - \frac{te^t}{4} + \frac{3e^t}{8} \right\}$$

b)

```
> partic := dsolve([ics, odes], [y(t), x(t)]):
```

```
> plot([seq(rhs(partic[i]), i=1..numelems(partic)), t=-10..10],  
view=[-10..10, -10..10], numpoints=400, legend='trajektorie',  
labels=['x(t)', 'y(t)'])
```



c)

```
> plot([seq(rhs(partic[i]), i=1..numelems(partic))], legend = ['x  
(t)', 'y(t)'])
```

