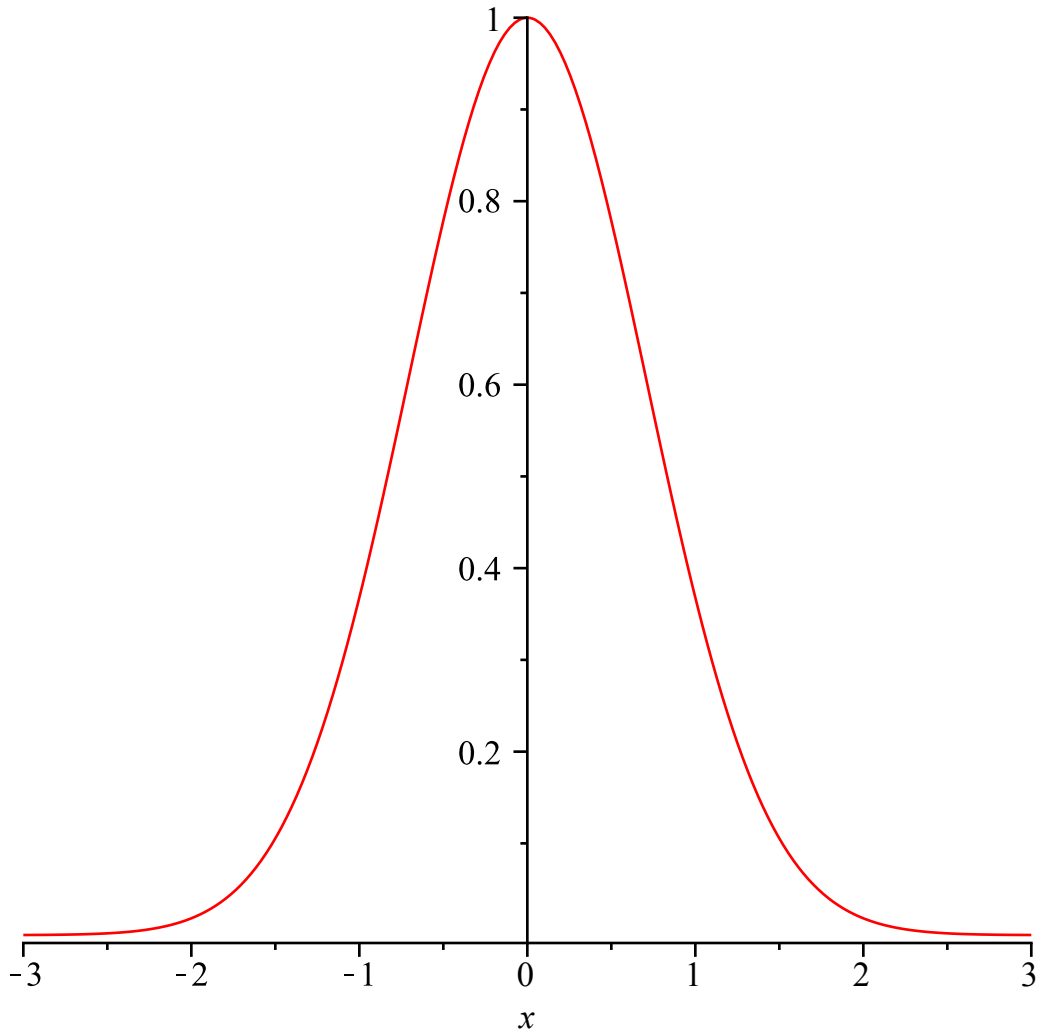


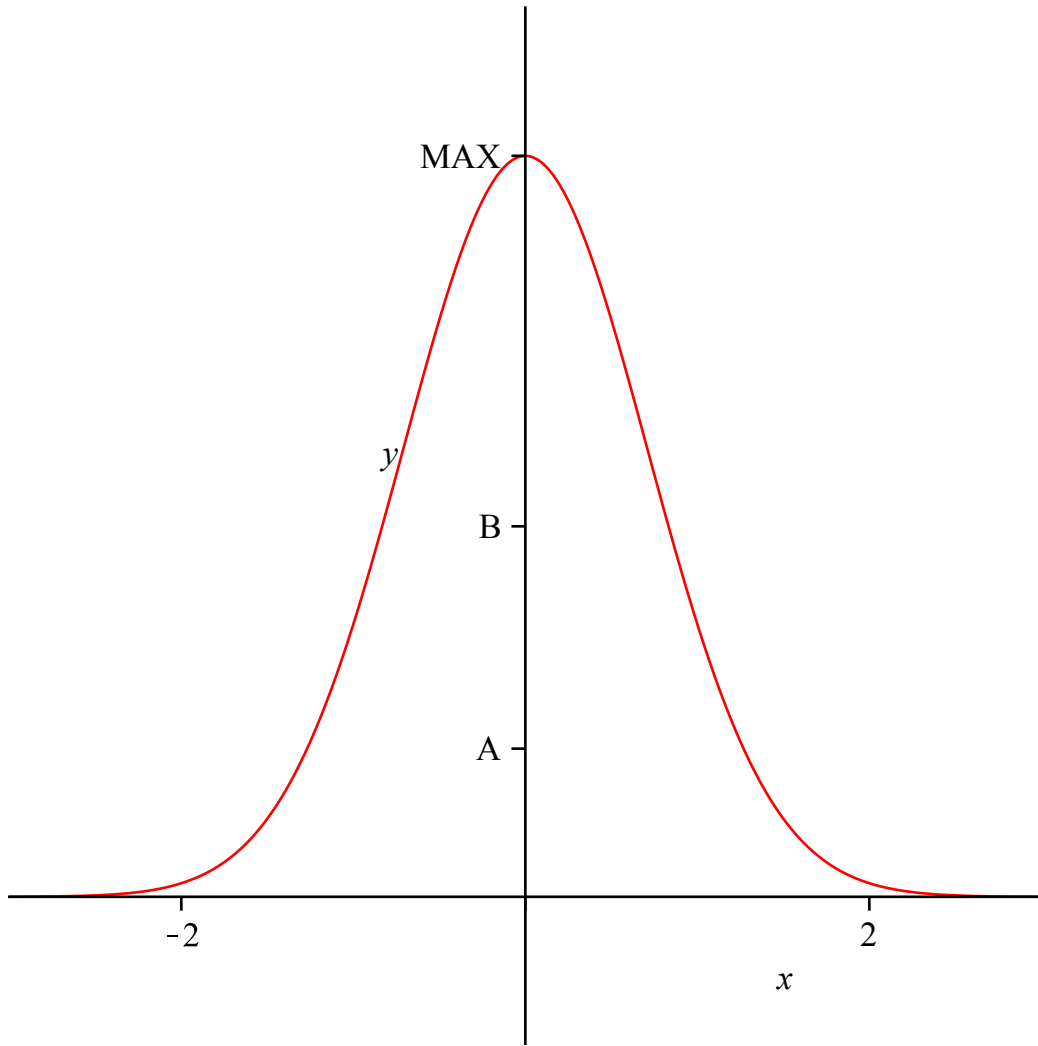
Testataufgabe SW3
Felix Rohrer

```
[> restart  
301)  
> plot(exp(-x^2), x=-3..3)
```



302)

```
> plot(exp(-x^2), x=-3..3, y=-0.2..1.2, xtickmarks=3, ytickmarks=[0.2="A", 0.5="B", 1="MAX"])
```



303)

```
> funktionen := [3*x^2 - 15*x + 18, 1/(x-2)^2]
```

```
funktionen := [3*x^2 - 15*x + 18, 1/(x-2)^2]
```

(1)

```
> farbe := [red, blue]
```

```
farbe := [red, blue]
```

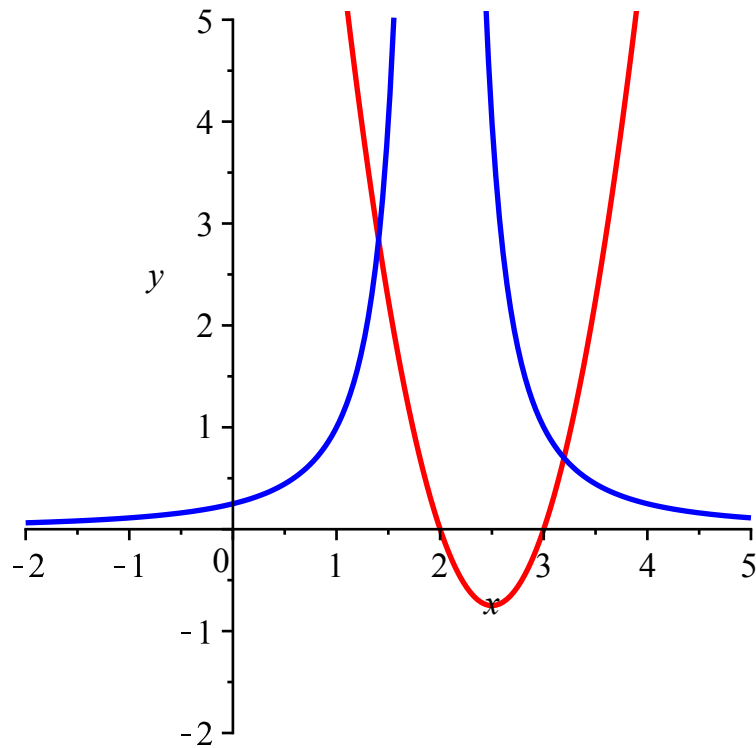
(2)

```
> dicke := 2
```

```
dicke := 2
```

(3)

```
> plot(funktionen, x=-2..5, y=-2..5, color=farbe, thickness=dicke)
```



304)

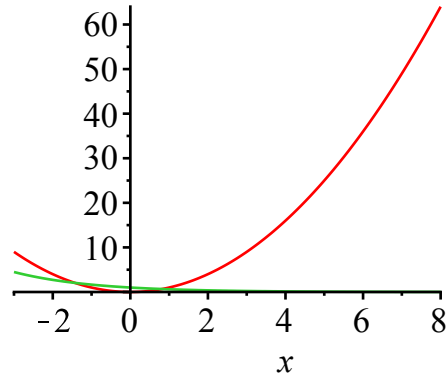
> restart

> funktionen := [x², exp(-0.5·x)]

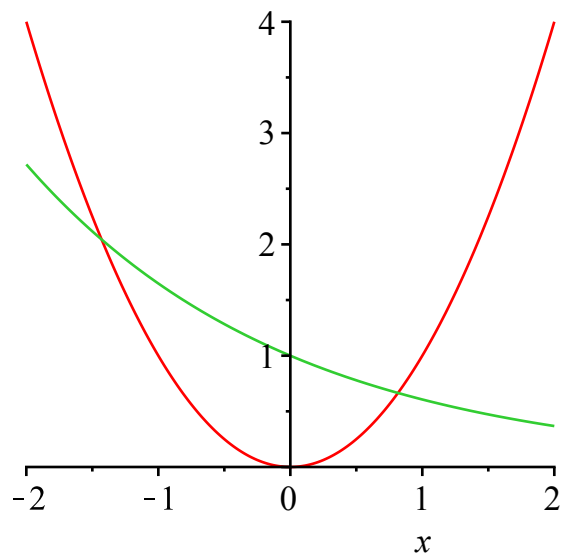
funktionen := [x², e^{-0.5x}]

(4)

> plot(funktionen, x=-3..8)



> plot(funktionen, x=-2..2)



Lösungen: $x = -1.4$, $x = 0.8$

305)

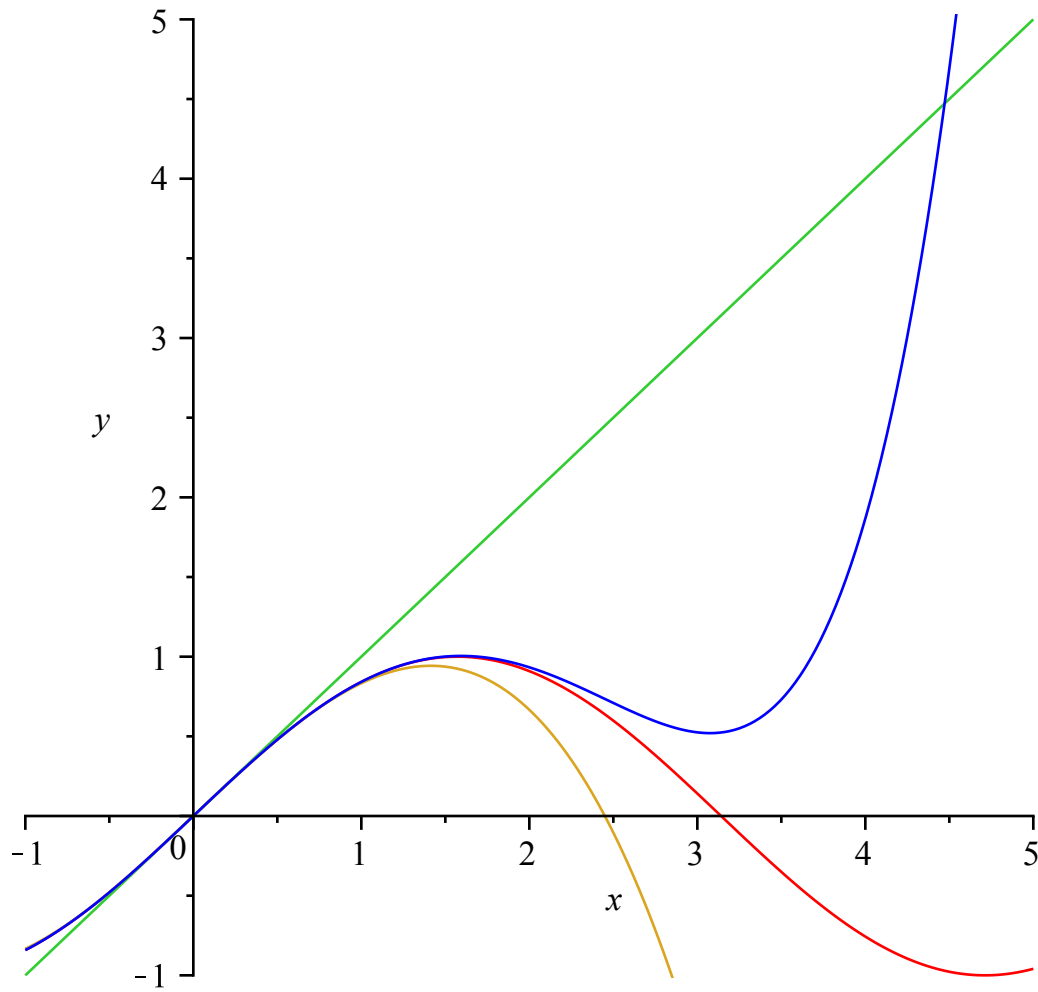
```
> funktionen := [sin(x), x, x -  $\frac{x^3}{6}$ , x -  $\frac{x^3}{6}$  +  $\frac{x^5}{120}$ ]
```

```
      funktionen := [sin(x), x, x -  $\frac{1}{6} x^3$ , x -  $\frac{1}{6} x^3$  +  $\frac{1}{120} x^5$ ]
```

(5)

```
> plot(funktionen, x=-1..5, y=-1..5, title="Taylorpolynome")
```

Taylorpolynome

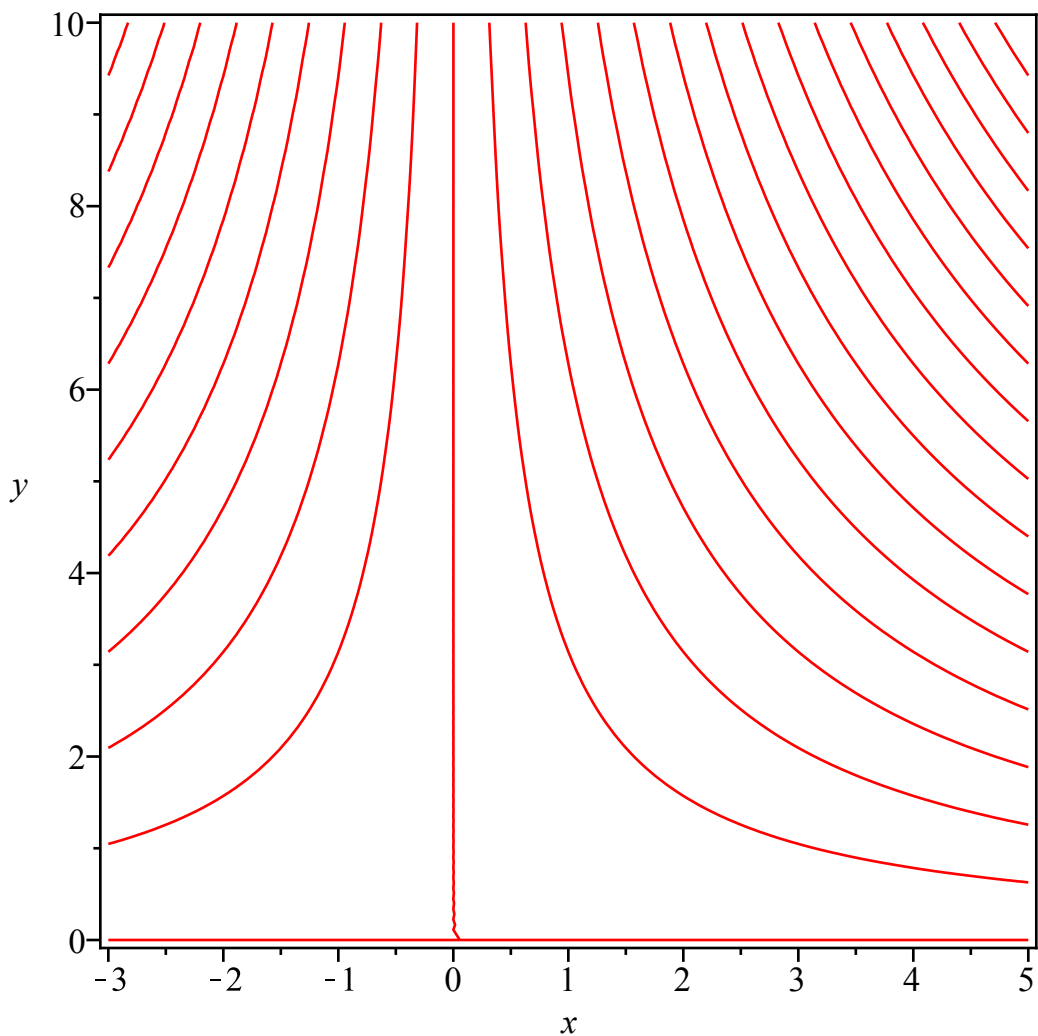


306)

```
> restart
```

```
> with(plots):
```

```
> implicitplot(sin(x*y) = 0, x=-3..5, y=0..10, grid = [90, 90], axes = boxed)
```



307)

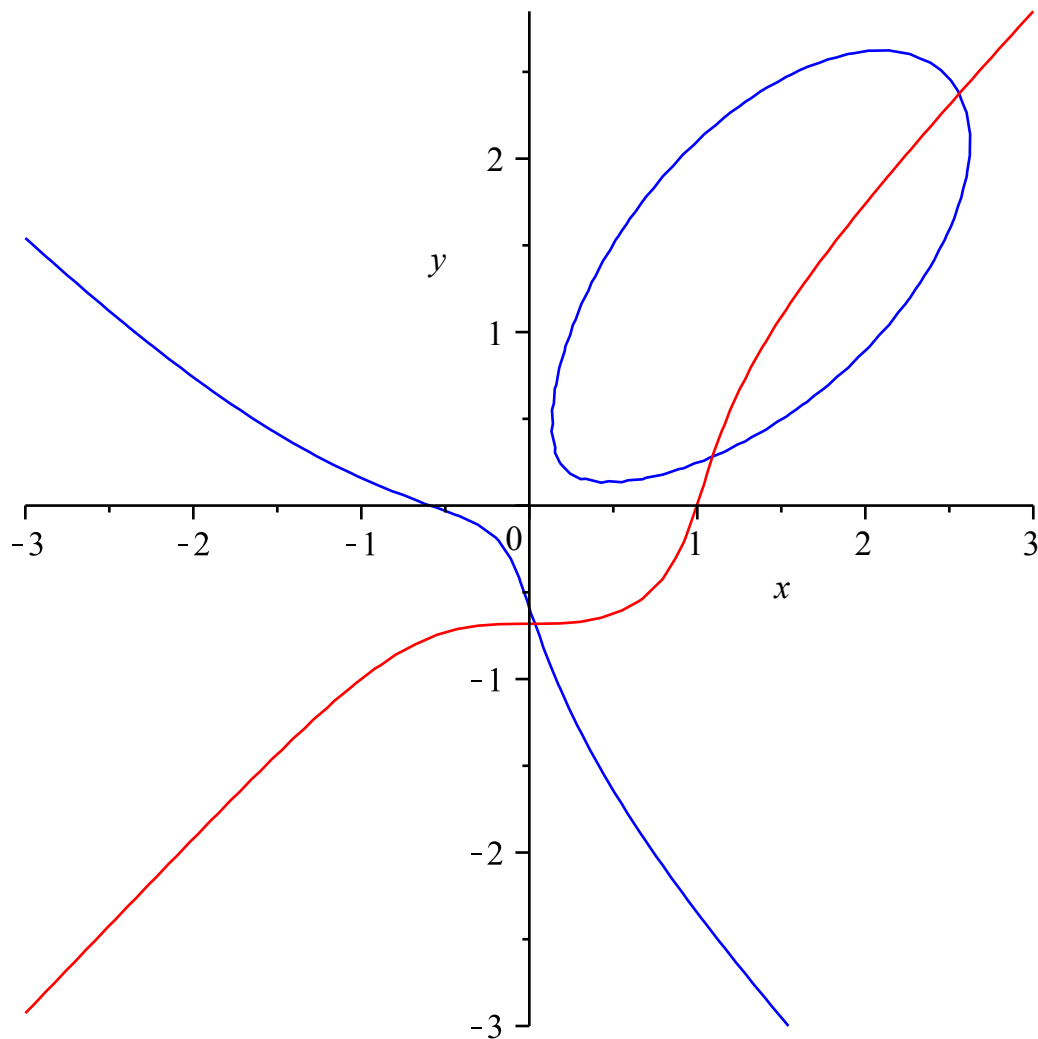
```
> restart
```

```
> with(plots) :
```

```
> fig1 := implicitplot( $x^3 + y^3 - 5 \cdot x \cdot y + \frac{1}{5} = 0$ ,  $x = -3 .. 3$ ,  $y = -3 .. 3$ ,  $grid = [50, 50]$ ,  $color = blue$ )  
fig1 := PLOT(...) (6)
```

```
> fig2 := implicitplot( $x^3 - y^3 - y = 1$ ,  $x = -3 .. 3$ ,  $y = -3 .. 3$ ,  $grid = [50, 50]$ )  
fig2 := PLOT(...) (7)
```

```
> display(fig1, fig2)
```

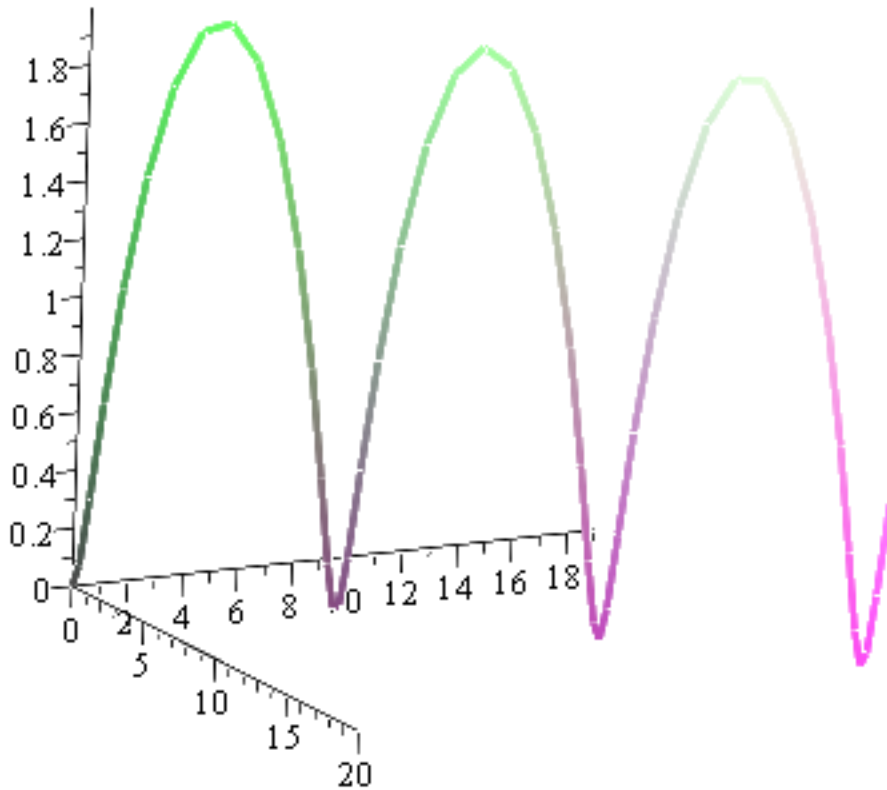


Lösungen: $x = 0.1$, $x = 1.1$, $x = 2.5$

308)

```
> restart  
> with(plots) :  
> funktion := t -> [t - sin(t), 1 - cos(t), t]  
      funktion := t -> [t - sin(t), 1 - cos(t), t]  
> spacecurve(funktion(t), t = 0 .. 20, axes = normal, thickness = 3)
```

(8)



309)

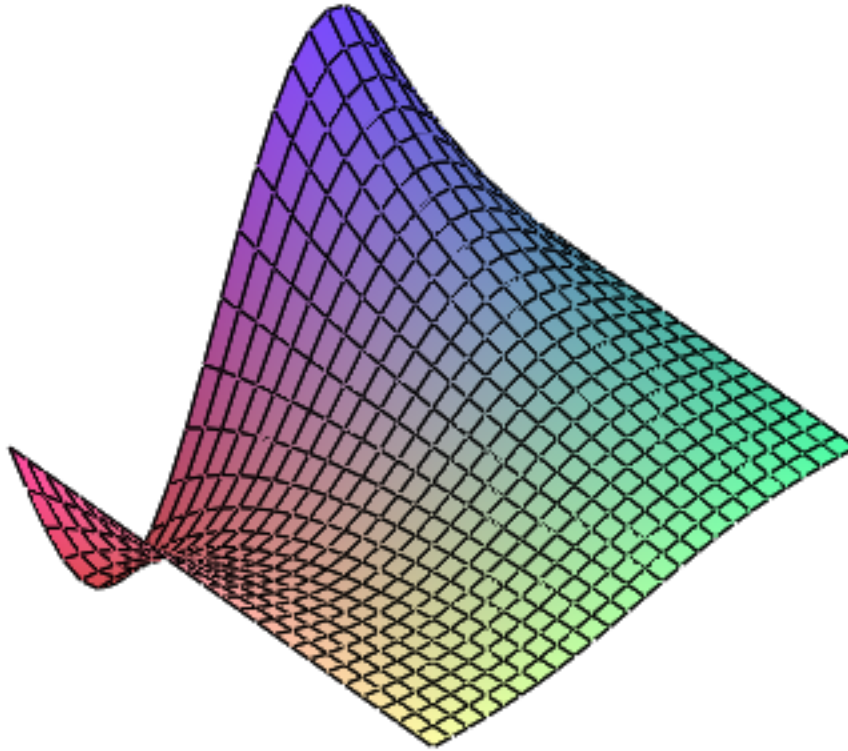
> restart

> funktion := (x, y) → sin(x) · exp(-y)

funktion := (x, y) → sin(x) e^{-y}

> plot3d(funktion(x, y), x = 0 .. 2 · Pi, y = 0 .. 3)

(9)



>