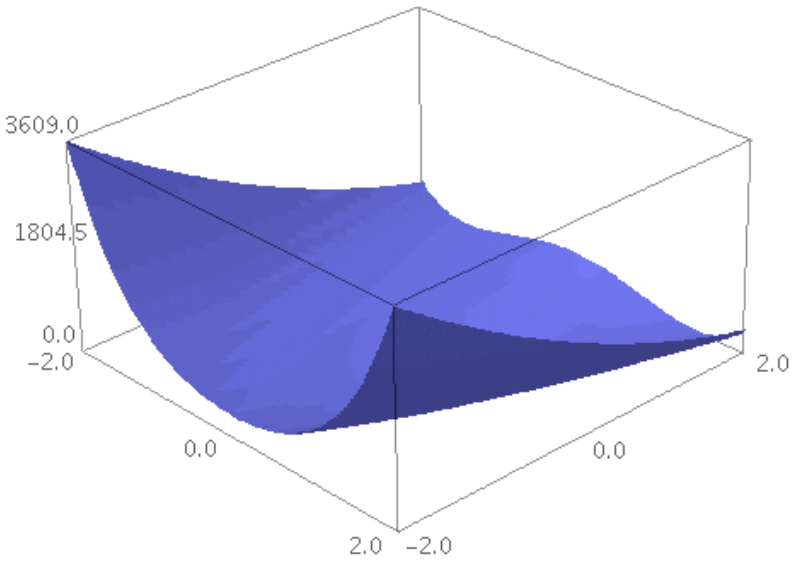
Aufgabe 13.3

last edited on January 18, 2012 07:21 PM by admin


```
Rosenbrock-(Bananen-)Funktion
f(x,y)=100*(y-x^2)^2+(1-x)^2
hat ein Minimum im bananenförmigen Tal,
das sich langs der Parabel y = x^2 erstreckt.
Das Minimum liegt im Punkt (1,1)
```

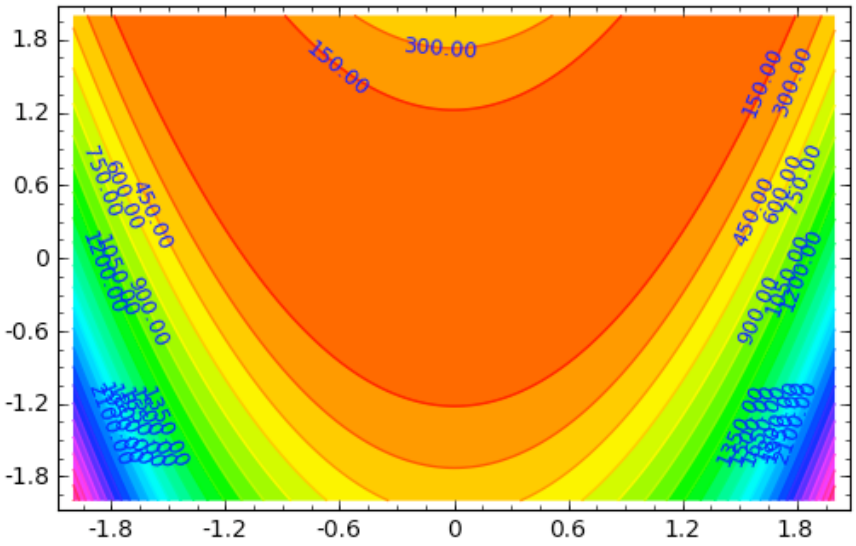
evaluate

```
x,y = var('x,y')
P1 = plot3d(100*(y-x^2)^2+(1-x)^2, (x,-2,2),(y,-2,2),plot_points=101)
P1
```



Get Image

```
var('x,y')
f = 100*(y-x^2)^2+(1-x)^2
myplot=contour_plot(f,(-2,2),(-2,2), fill=True, cmap='hsv',
contours=27,plot_points=151, labels=True)
show(myplot)
```




```
x,y = var('x y')
f = 100*(y-x^2)^2+(1-x)^2
minimize_constrained(f,[(None,None),(-2,2)],[-2,2])
```

```
(0.999418608809, 0.998834987829)
```

```
x,y = var('x y')
f = 100*(y-x^2)^2+(1-x)^2
minimize(f,[0.1,0.1])
```

```
Optimization terminated successfully.
         Current function value: 0.000000
         Iterations: 21
         Function evaluations: 26
         Gradient evaluations: 26
(0.999999997488, 0.999999994921)
```