v10Rosen

March 22, 2022

1 VV3 Fall Rosenbrocks

1.1 a

```python
def rosen(x,y):
    # fall: f(x,y) = (1 - x)² + 100(y - x²)²
    return (1-x)**2 + 100*(y-x**2)**2 # námundar að einum aukastaf

print(round(rosen(-1.2,1),1))
```

    24.2

1.2 b

```python
import matplotlib.pyplot as plt
import numpy as np

plt.figure(figsize=(10,6))
levels = np.append([0.2], np.arange(2,50,4)**2)
x = np.linspace(-2,2,300)
y = np.linspace(-1,3,300)
z = np.array([[rosen(xi,yj) for xi in x] for yj in y])
c = plt.contour(x, y, z, 8, colors = 'darkblue', levels=levels)
plt.clabel(c, fmt="%.0f");
# plt.yticks(np.arange(-2, 3))
plt.axhline(c='k')
plt.grid(True)
plt.axvline(c='k');
plt.show()
```