Prac-3

from sympy import \*

x, y = symbols('x y')

expr = 100\*(y - x\*\*2)\*\*2 + (1 - x)\*\*2

def grad(expr):

  grd1 = diff(expr, x)

  grd2 = diff(expr, y)

  deltaf = [grd1.doit(), grd2.doit()]

  gradient = [grd1.evalf(subs = {x : 0, y : 0}), grd2.evalf(subs = {x : 0, y : 0})]

  print(gradient)

  h1 = diff(grd1, x)

  h2 = h3 = diff(grd1, y)

  h4 = diff(grd2, y)

  hessian = [[h1.evalf(subs = {x : 0, y : 0}), h2.evalf(subs = {x : 0, y : 0})], [h3.evalf(subs = {x : 0, y : 0}), h4.evalf(subs = {x : 0, y : 0})]]

  print(hessian)

grad(expr)

**OUTPUT**

