Bogdan Chwaliæski

Zestaw 8 zadanie 2

In[124]:= `f[{x_, y_}] = (1 - x)^2 + 100 (y - x^2)^2;`

In[125]:= ```
FindMinimum[(1 - x)^2 + 100 (y - x^2)^2,
             {x, 0.1},
             {y, 0.1},
             Method -> "LevenbergMarquardt"
           ]
```

Out[125]= $\{0., \{x \to 1., y \to 1.\}\}$

In[126]:= ```
FindMinimum[(1 - x)^2 + 100 (y - x^2)^2,
             {x, 0.5},
             {y, 0.1},
             Method -> "LevenbergMarquardt"
           ]
```

Out[126]= $\{0., \{x \to 1., y \to 1.\}\}$

In[127]:= ```
FindMinimum[(1 - x)^2 + 100 (y - x^2)^2,
             {x, 1.5},
             {y, 2.1},
             Method -> "LevenbergMarquardt"
           ]
```

Out[127]= $\{0., \{x \to 1., y \to 1.\}\}$

In[128]:= ```
FindMinimum[(1 - x)^2 + 100 (y - x^2)^2,
             {x, Random[]},
             {y, Random[]},
             Method -> "LevenbergMarquardt"
           ]
```

Out[128]= $\{0., \{x \to 1., y \to 1.\}\}$

In[129]:= `i = 0;`

In[130]:= ```
pts = Reap[FindMinimum[
        (1 - x)^2 + 100 (y - x^2)^2,
        {x, 0.1}, {y, 0.1},
        Method -> "LevenbergMarquardt",
        StepMonitor :> {Sow[{x, y}], i++}
      ]][[2, 1]];
Print["Potrzeba ", i , " krokow."];
pts = Join[{{-1.2, 1}}, pts];
```
```
Potrzeba 9 krokow.
```

In[133]:= `ContourPlot[100 (y - x²)² + (1 - x),`
`{x, -2, 2},`
`{y, -2, 2},`
`Epilog → {Green, Point[pts]}`
`]`

Out[133]=