HM2 – Serie 3

1. $f_1(x_1, x_2) = 20 - 18x_1 - 2x_2^2$

$f_2(x_1, x_2) = -4x_2 \cdot (x_1 - x_2^2)$

$x^{(0)} = \begin{pmatrix} 1.1 \\ 0.9 \end{pmatrix}$

0: $Df(x^{(0)}) = \begin{pmatrix} -18 & -3.6 \\ -3.6 & 5.32 \end{pmatrix}$, $\delta^{(0)} = \begin{pmatrix} -0.104 \\ 0.126 \end{pmatrix}$, $f(x^{(0)}) = \begin{pmatrix} -1.42 \\ -1.044 \end{pmatrix}$

~~$Df(x^{(0)})$~~ $\|f(x^{(0)})\|_2 = 0.233$, $\|\delta\|_2 = 0.163$

1: $Df(x^{(1)}) = \begin{pmatrix} -18 & -4.103 \\ -4.103 & 8.644 \end{pmatrix}$, $\delta^{(1)} = \begin{pmatrix} 0.004 \\ -0.025 \end{pmatrix}$, $f(x^{(1)}) = \begin{pmatrix} -0.032 \\ 0.231 \end{pmatrix}$

$\|f(x^{(1)})\|_2 = 0.008$, $\|\delta\|_2 = 0.025$