Homework #2
Due Monday Feb 22

Homework is due by 11:59 pm on the due date. Late homework will not be accepted.

1. (30 points) Derive the Newton-Raphson method for systems of non-linear equations. You can just follow my in-class derivation, but consider x and $f(x)$ as vectors. Širca & Horvat explain how to handle the derivative.

2. (a) (50 points) In your **Chosen compiled language** write a code to solve the equations, that is find the roots x_0 and y_0 of the equations:

$$\begin{aligned} \sin(x+y) &= 0 \\ \cos(x-y) &= 0 \end{aligned}$$

   Dicuss how you chose your starting guess and show the convergence in your write up.

   (b) (30 points) Check your result using a canned solver, that is something from Mathematica or Python or Mathlab.