

Home-work 3

First Task

Plot two functions on the same graph for $\eta=0.1$ and $\eta=1.1$.

$$d(\alpha) = \frac{L \cos(\alpha)}{\sin(\alpha)} + \frac{L \eta}{\sin(\alpha)}; \text{ set } L=1$$

Second Task

Write a Matlab script (step-by-step) that finds the roots of a function using the Newton method.

Use **your** Matlab script (Newton method) and find optimal steering angle for $\eta=0.1, 0.2, 0.3, 0.4, 0.5, 0.6, 0.7, 0.8$ and 0.9 .

| η | opt. angle (°) |
|--------|----------------|
| 0.1 | |
| 0.2 | |
| 0.3 | |
| 0.4 | |
| 0.5 | |
| 0.6 | |
| 0.7 | |
| 0.8 | |
| 0.9 | |