

a) Use the explicit Euler to simulate two steps of the system,

$$\begin{aligned} \dot{x}_1 &= x_2 \\ \dot{x}_2 &= -\sin(x_1) - x_2\sqrt{|x_2|} \end{aligned} \text{ with } \mathbf{x}'(0) = (1, -0.5)' \text{ and step size, } T=0.1.$$