(3) (Project) Reproduce the results in [1].

References

[1] Richard Sharp, Yen-Hsi Tsai, and Bjorn Engquist. Multiple time scale numerical methods for the inverted pendulum problem. In *Multiscale methods in science and engineering*, volume 44 of *Lect. Notes Comput. Sci. Eng.*, pages 241–261. Springer, Berlin, 2005.