Mathematica for physicists - Exercise 1

Due to 31/04/2019

Exercise 1

We have developed in class the solution of

$$\frac{\partial^2}{\partial t^2}\phi(t) + \omega^2 \sin(\phi(t)) = 0, \tag{1}$$

and derived the power series in short times for specific initial conditions. See the attached Mathematica file for the solution.

Get the same solution by using a power series expansion. The first stage of this derivation appears in the Mathematica file.