**Homework #2**

“Forced oscillations”

Mathematical Modelling

Dmytro Tkachenko

19/05/2024

**Task 1**

From equation: and

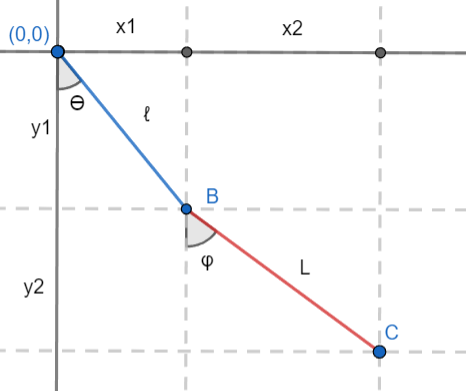
We have:

Also: where

Put everything together:

Result:

**Task 2**

****

Conditions::

Result:

**Task 3**

**References**

1. Wikipedia. Differential Equation: https://en.wikipedia.org/wiki/Differential\_equation
2. Wikipedia. Runge–Kutta methods: https://en.wikipedia.org/wiki/Runge%E2%80%93Kutta\_methods
3. Wikipedia. Pendulum:

https://en.wikipedia.org/wiki/Pendulum