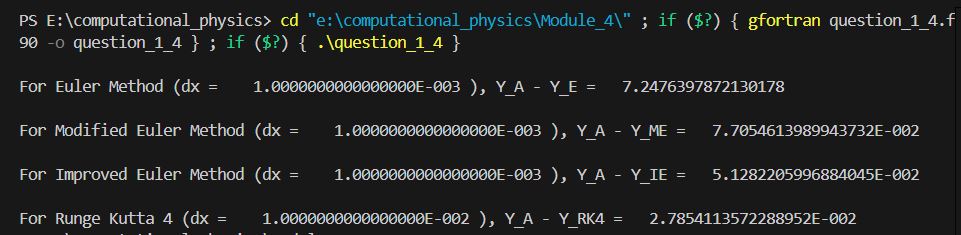
**Module 4**

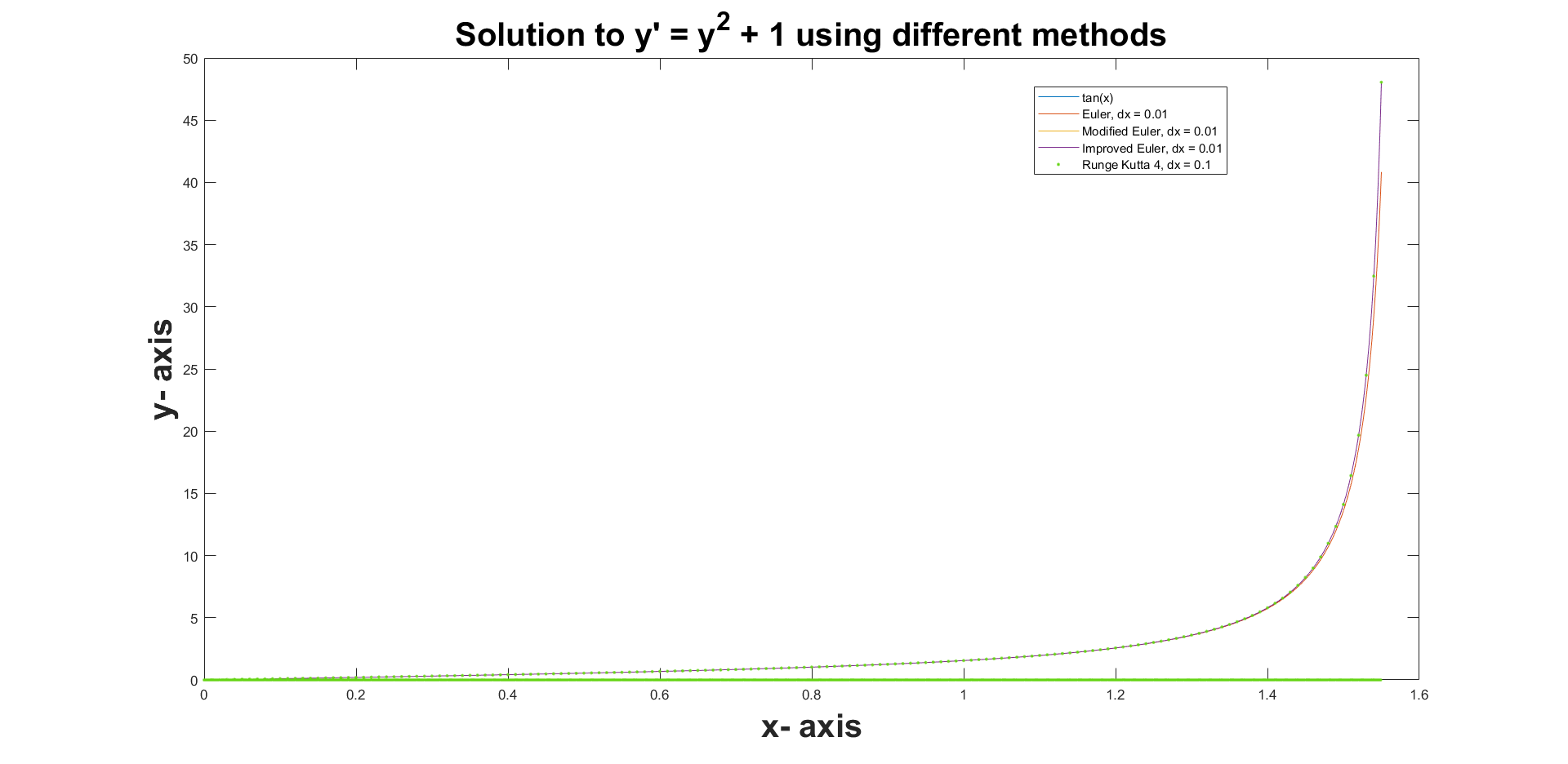
Submitted by: Anirban Nath

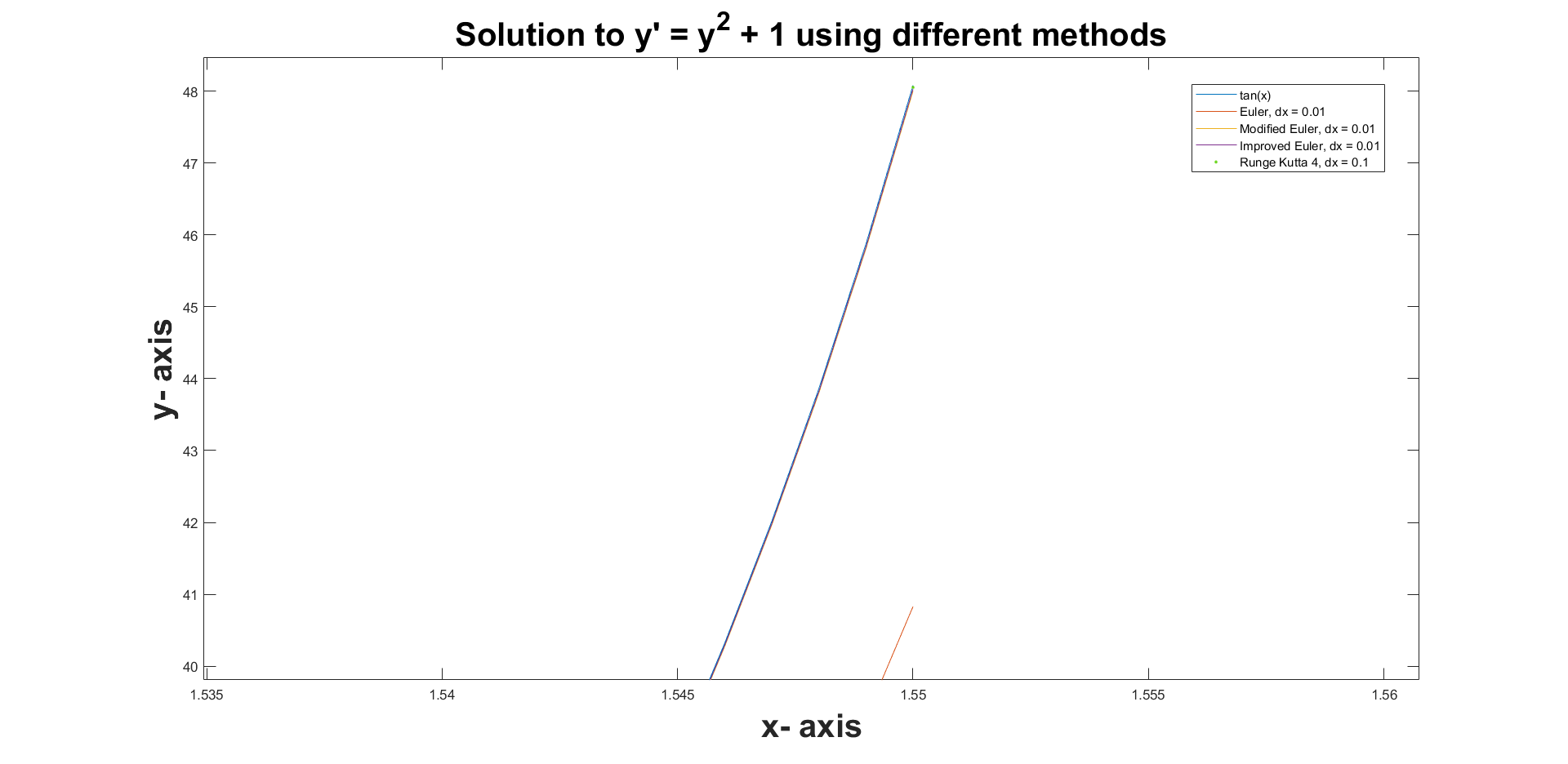
Register number: 20242019

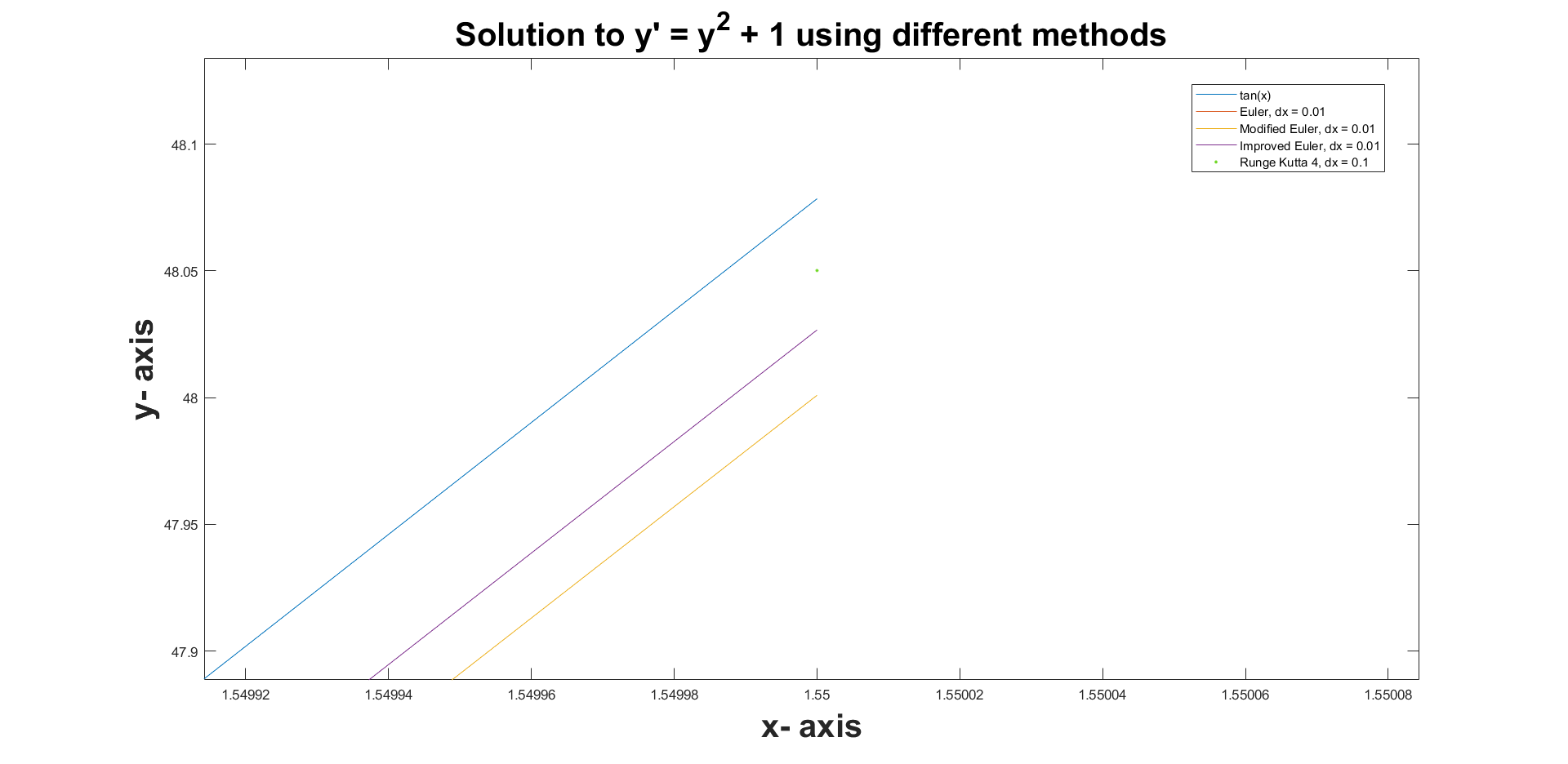
**ODE PART**

**Question 1 to 4.**

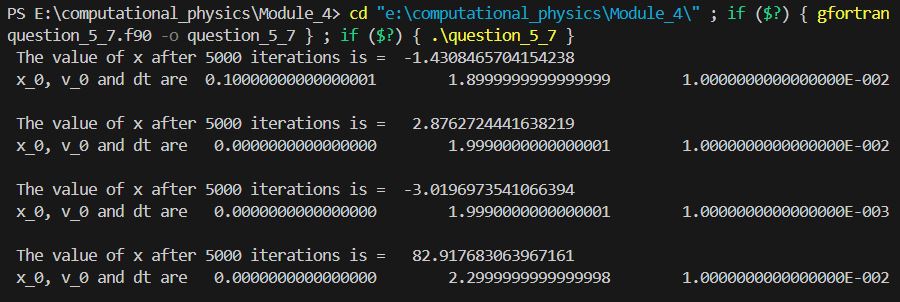


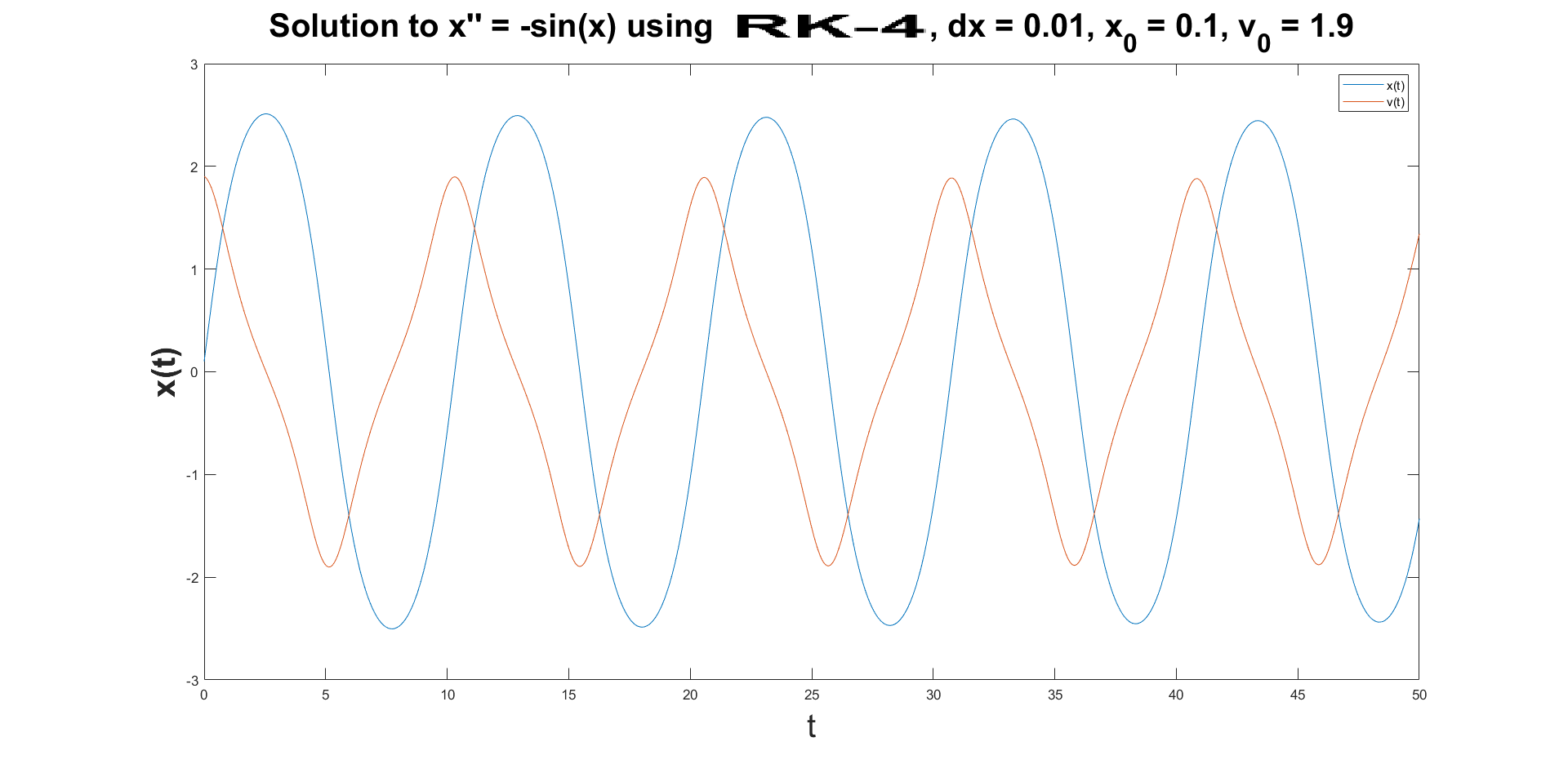


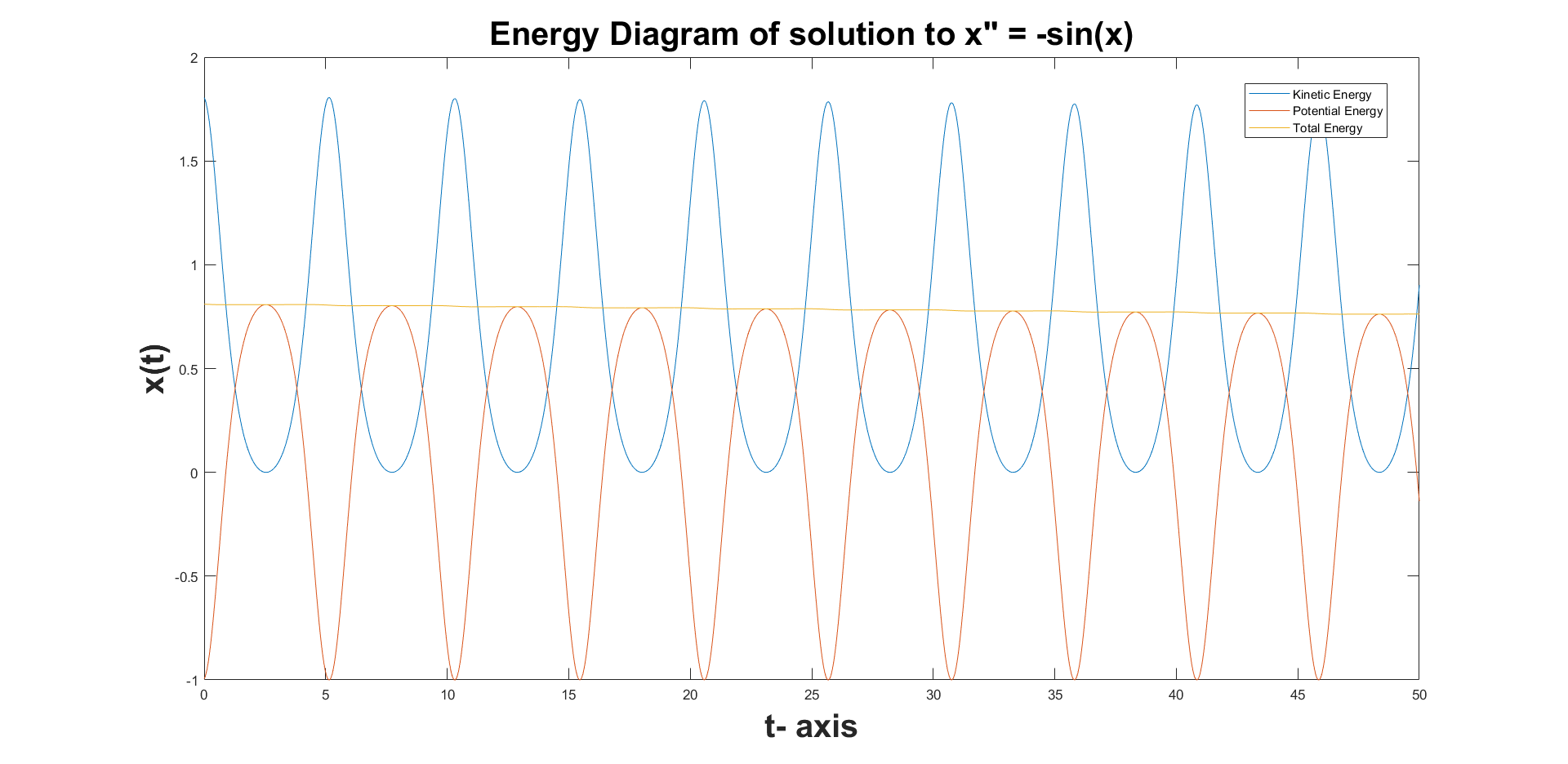




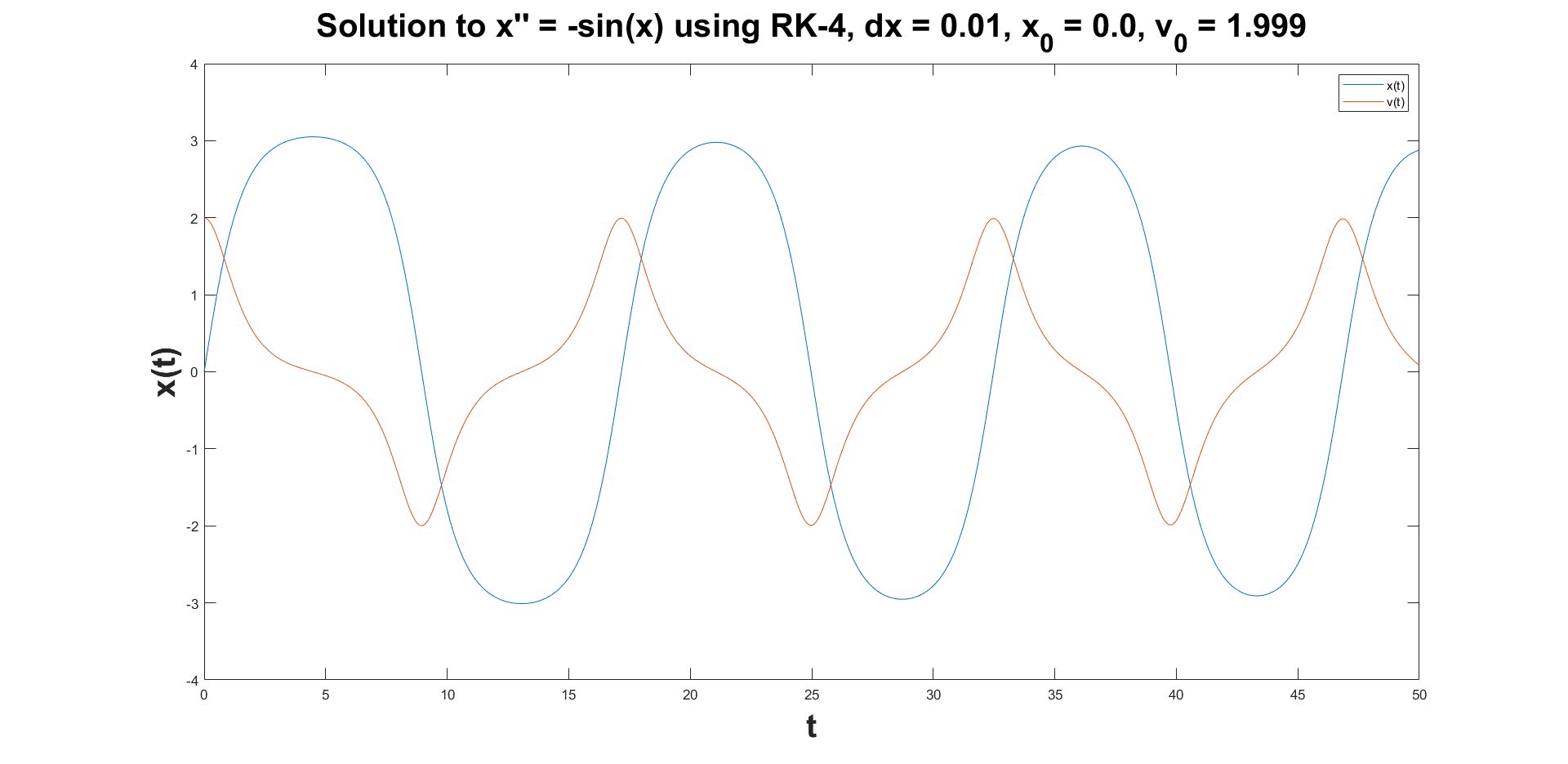
**Question 5.**

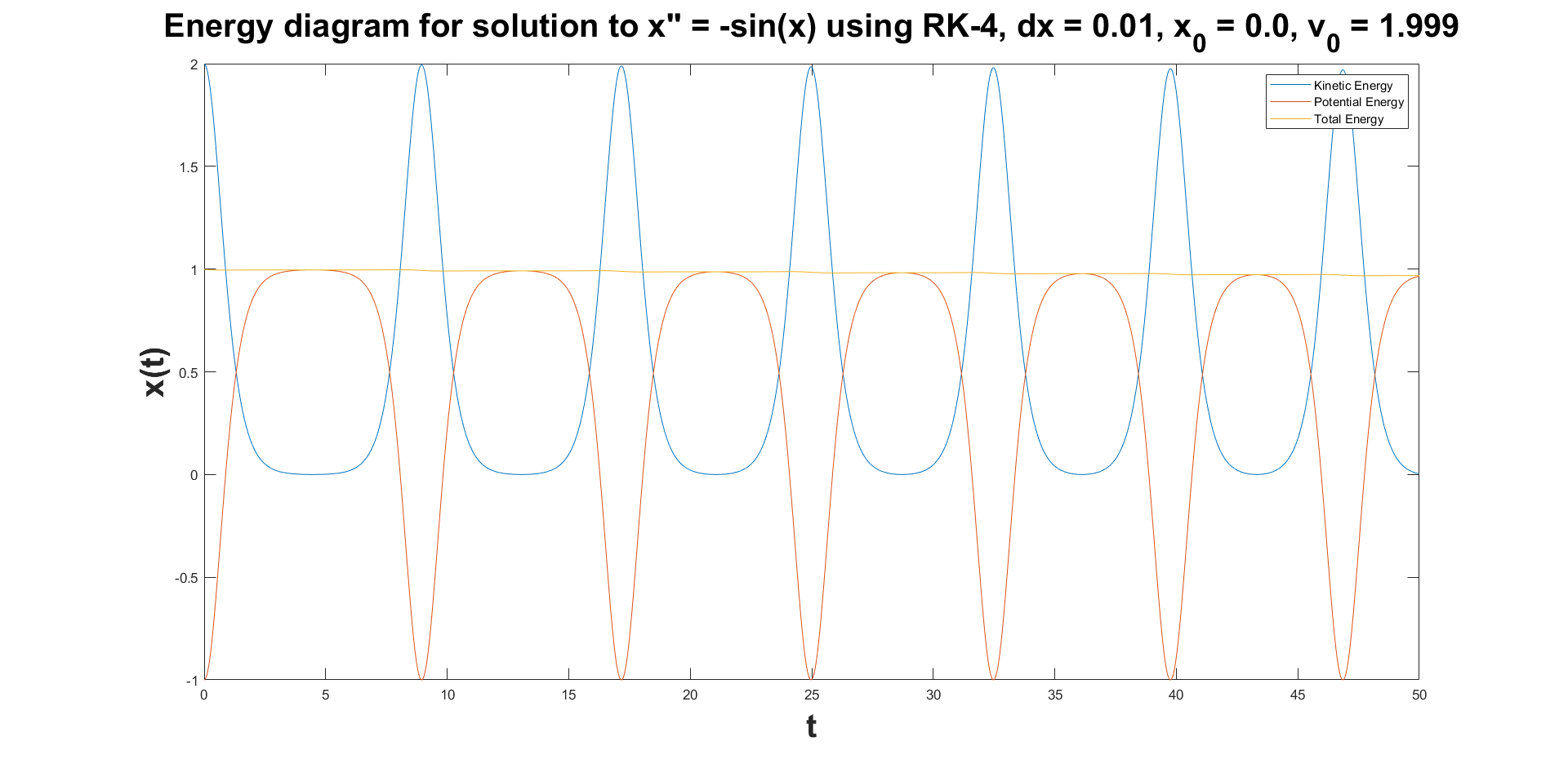






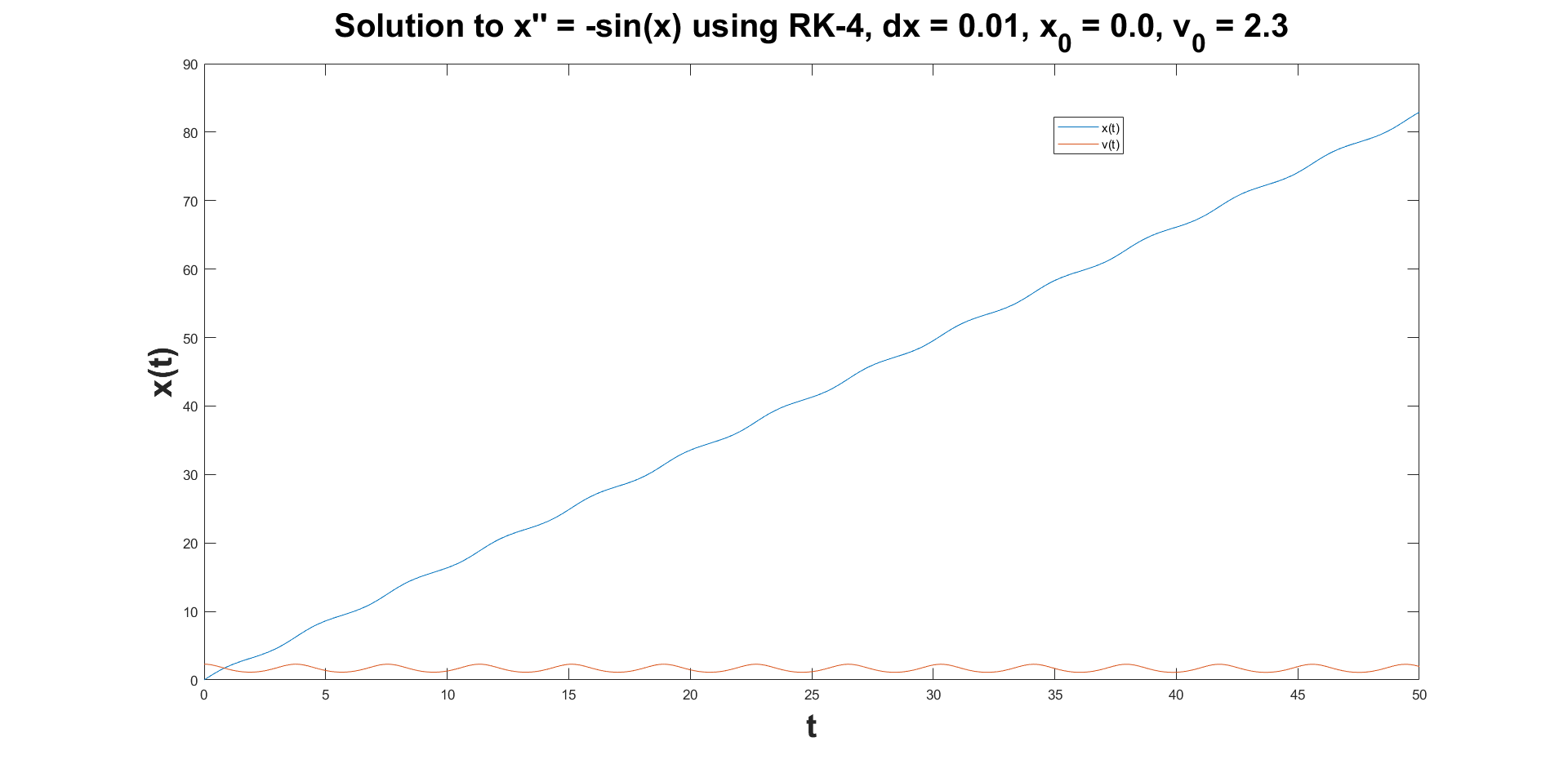
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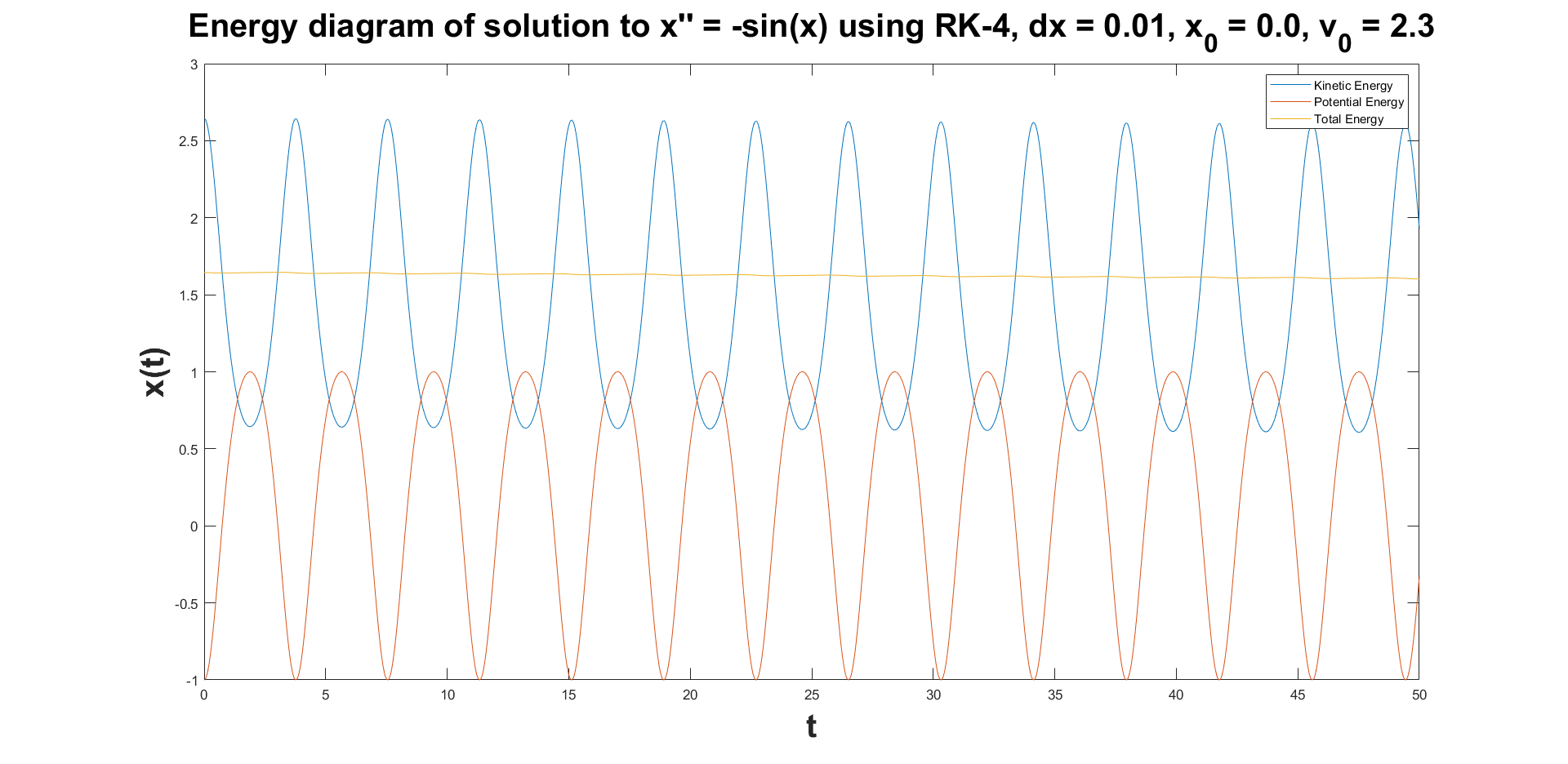
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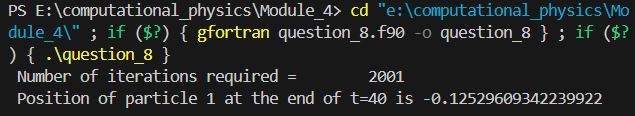
**Question 7.**

The solution looks very different because the initial velocity is more than the critical velocity, thus the bob of the pendulum goes past the extremum point.

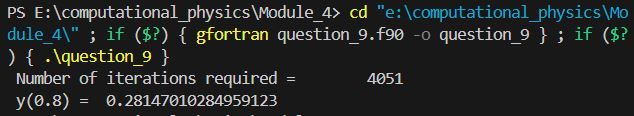


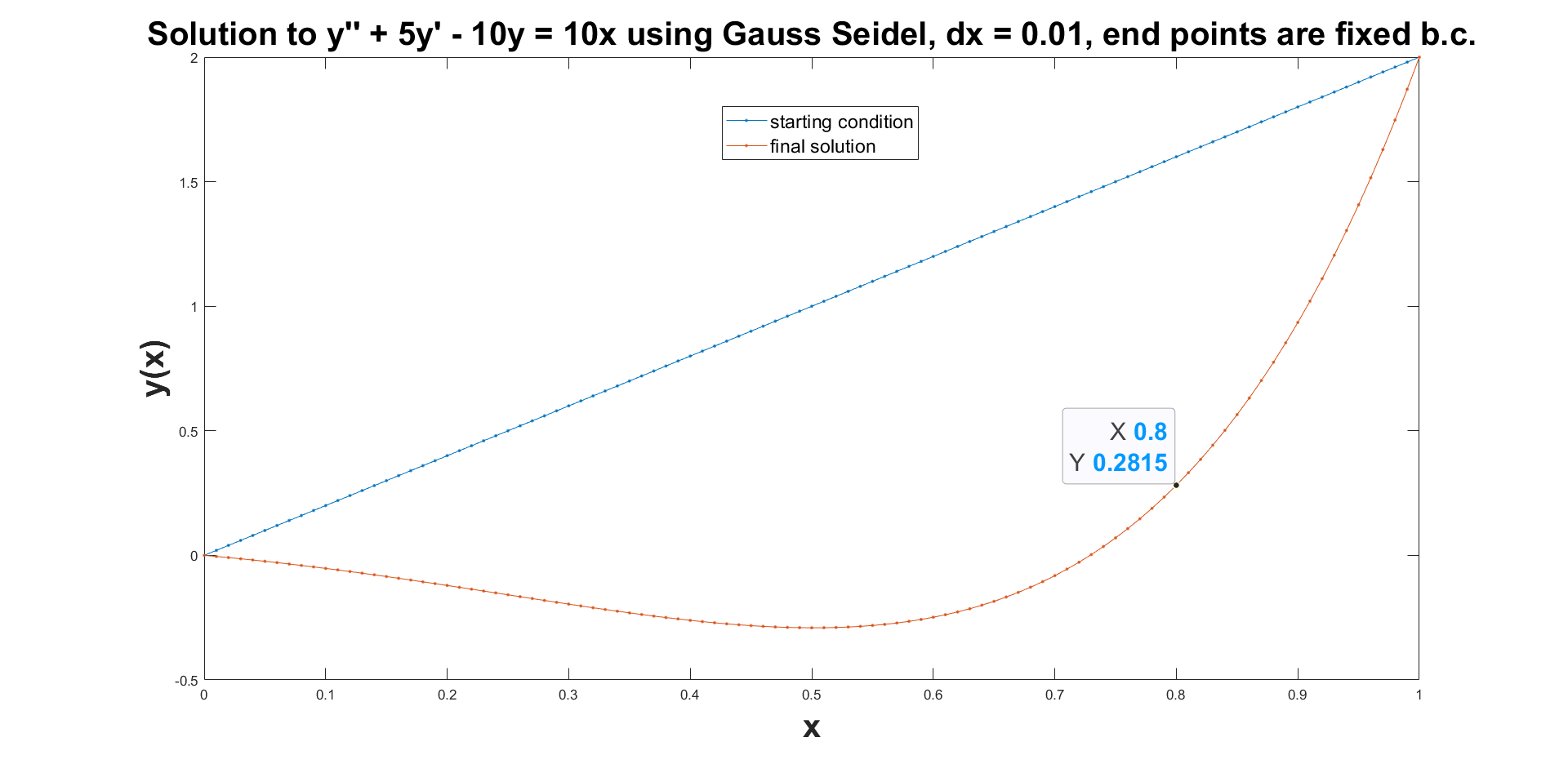


**Question 8.**



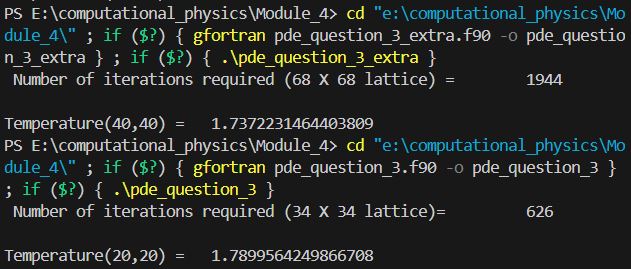
**Question 9.**

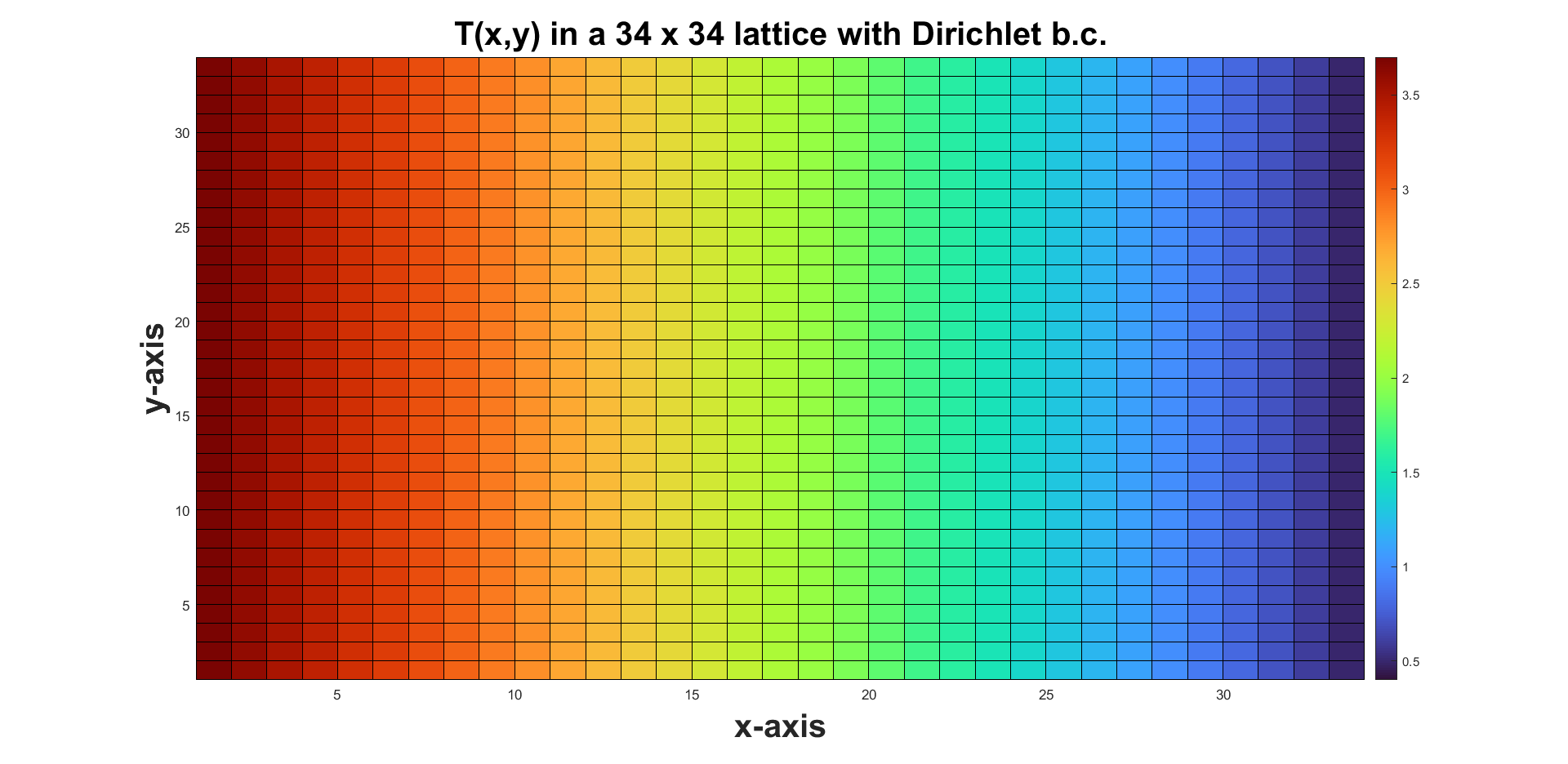


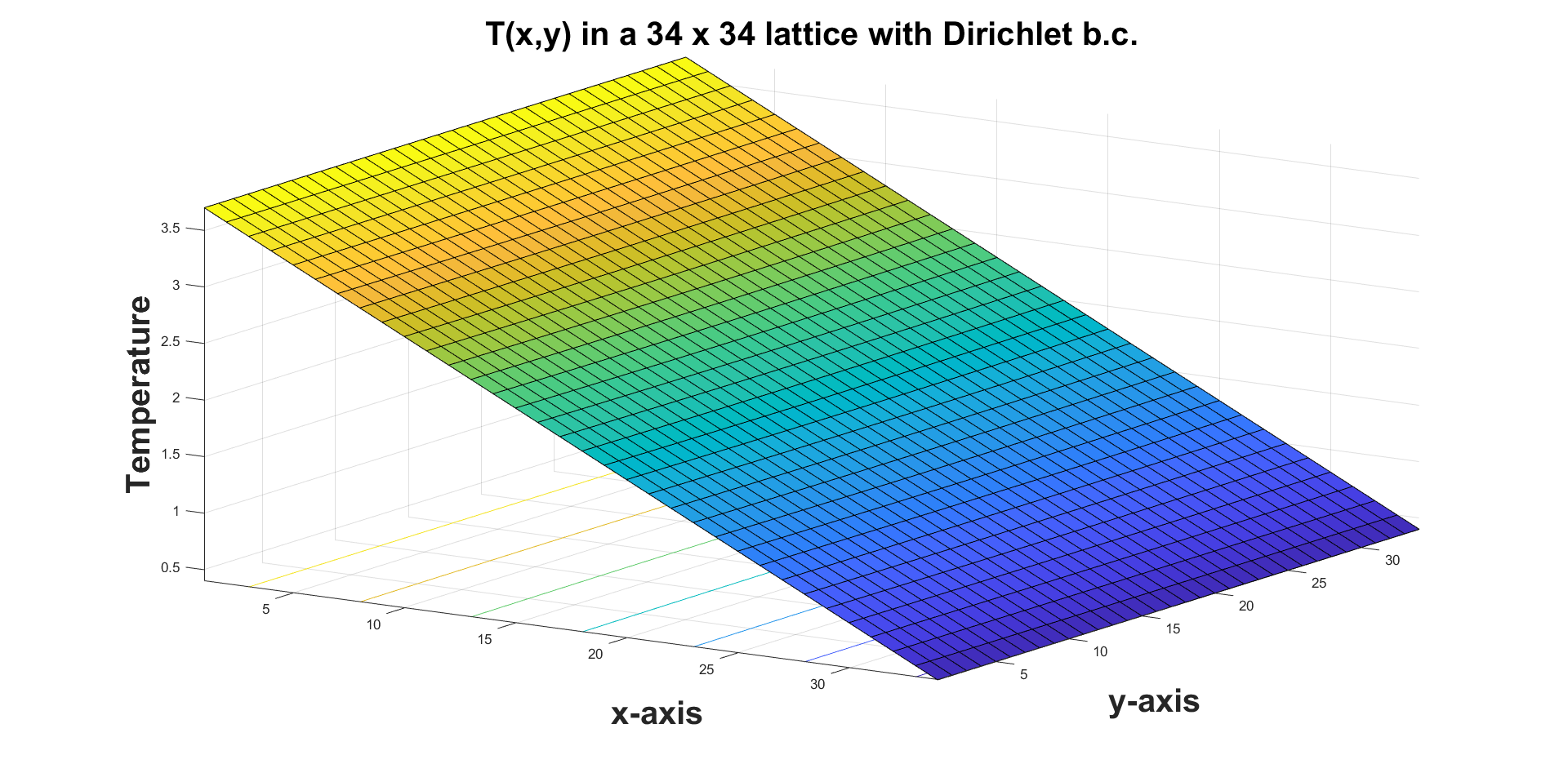


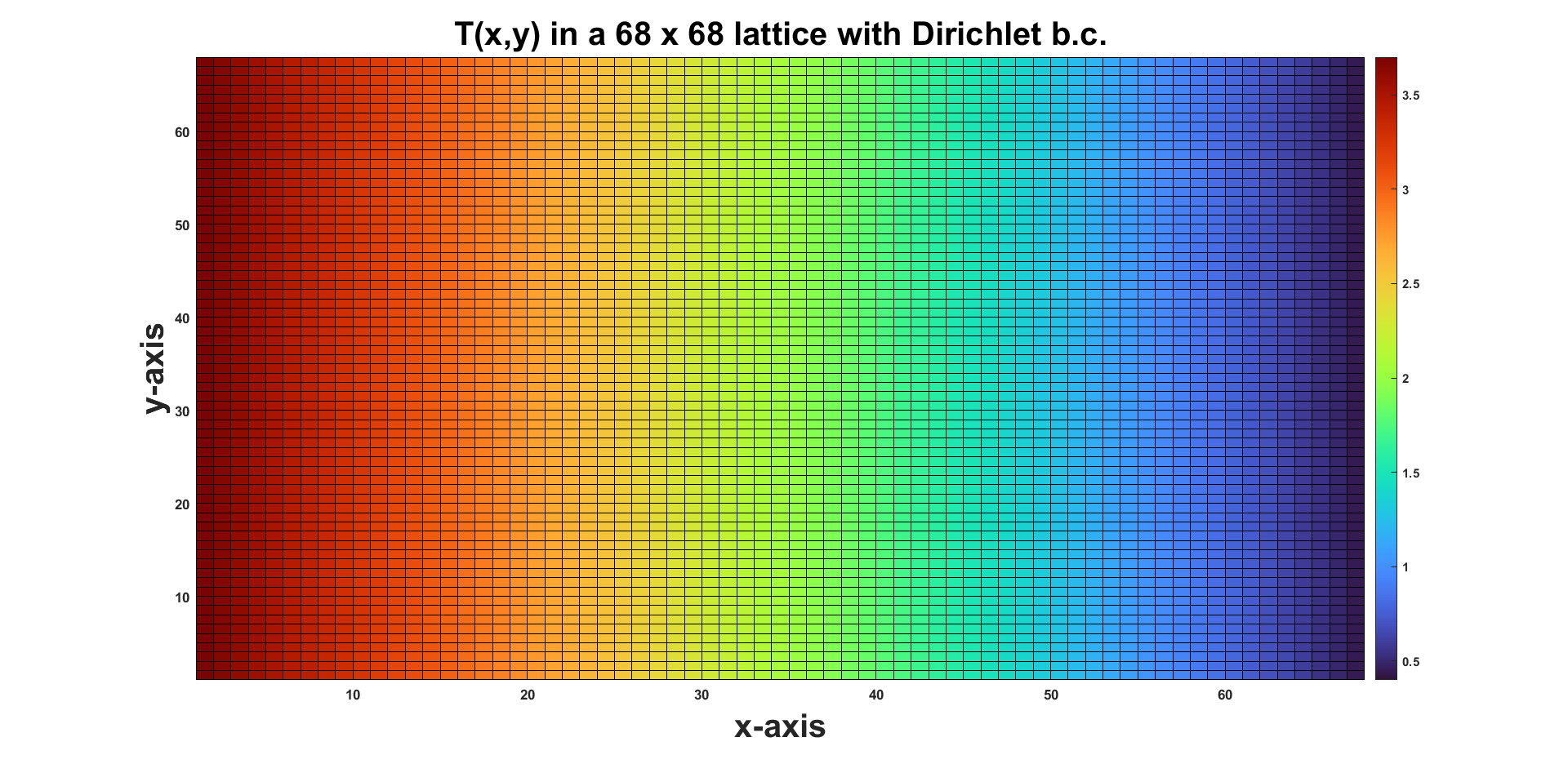
**PDE PART**

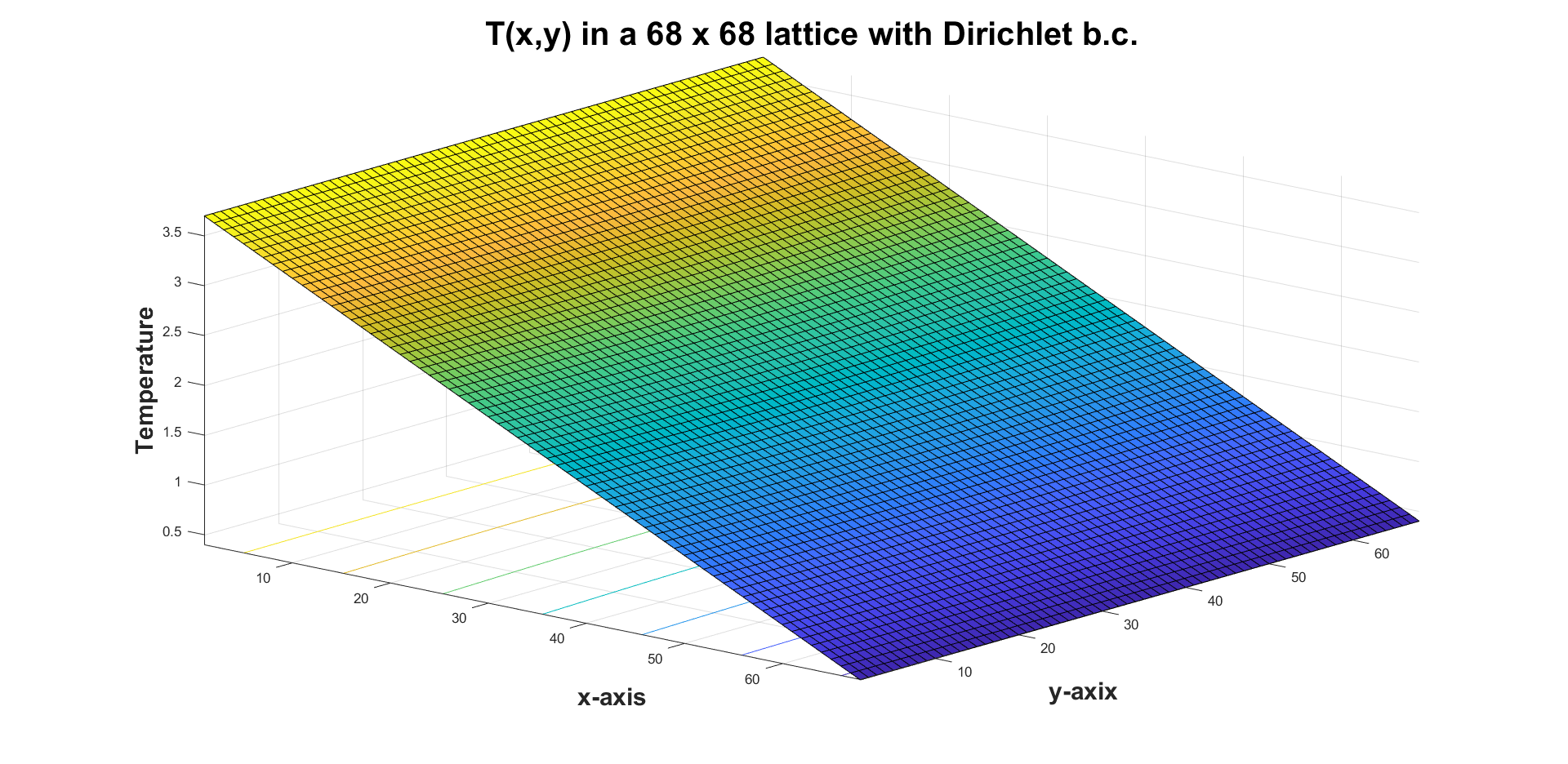
**Question 3.**











**Question 4.**

