

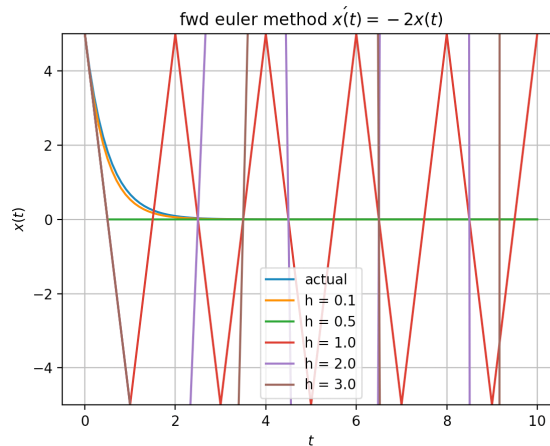
# CS5016 : Computational Methods and Applications

## Assignment 6 : Ordinary Differential Equations

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### Question 1

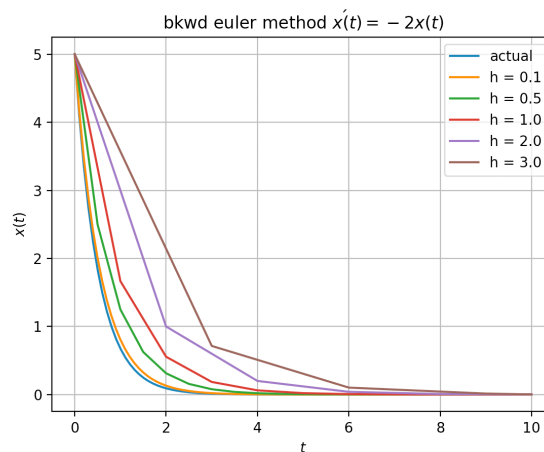
The Polynomial class created in previous coding assignment was used to solve this problem. Also, bestFitPoly function from Assignment 5 Q1 was used to compute best fit polynomial for points.



The plot is shown above for convenience.

### Question 2

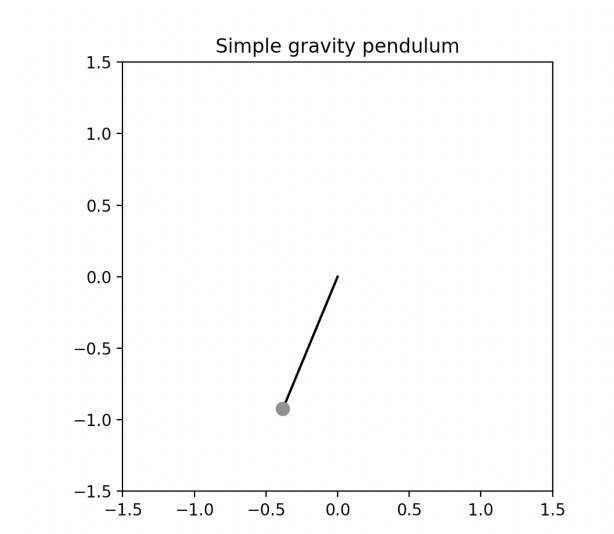
The Polynomial class created in previous coding assignment was used to solve this problem. Also, bestFitPoly function from Assignment 5 Q1 was used to compute best fit polynomial for points.



The plot is shown above for convenience.

### Question 3

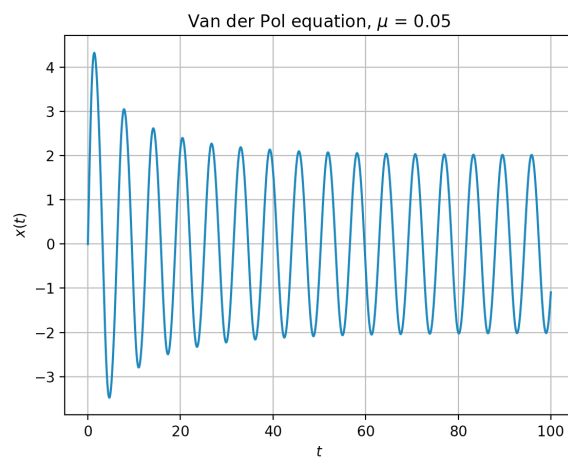
It may be noted that although massless cord is asked in the question, I took it as massless rod. The only observable difference is when the initial angle is more than  $\frac{\pi}{2}$ , where the cord seems to stay stiff.



A screen grab from the output is pasted above for convenience.

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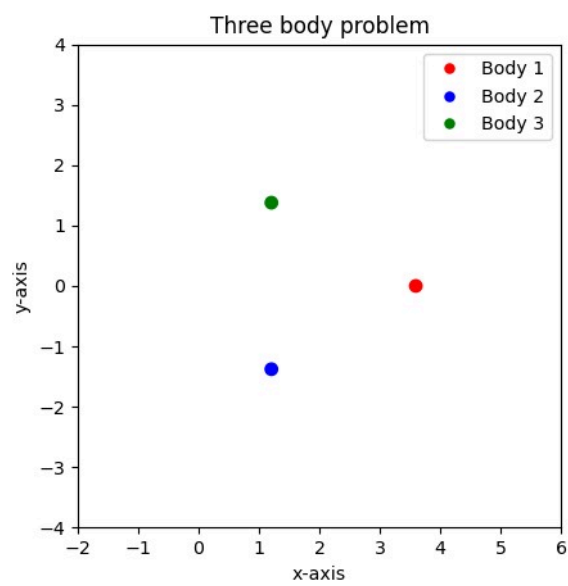
### Question 4



The above plot is shown when for  $\mu = 0.05$ .

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**Question 5**



A screen grab from the output is pasted above for convenience.

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