Assignment 3

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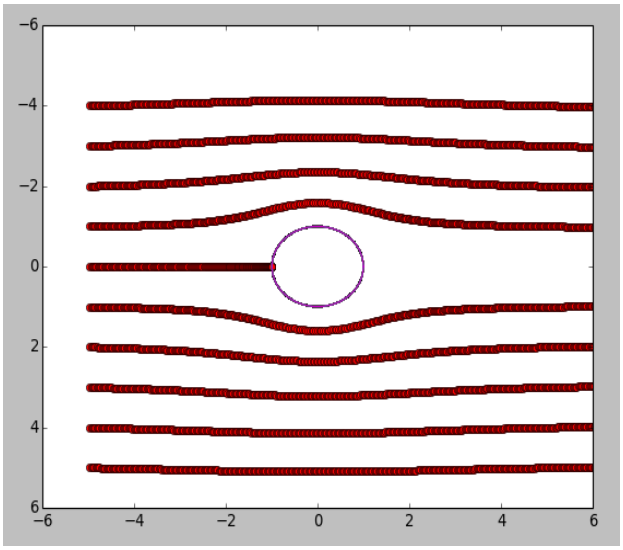
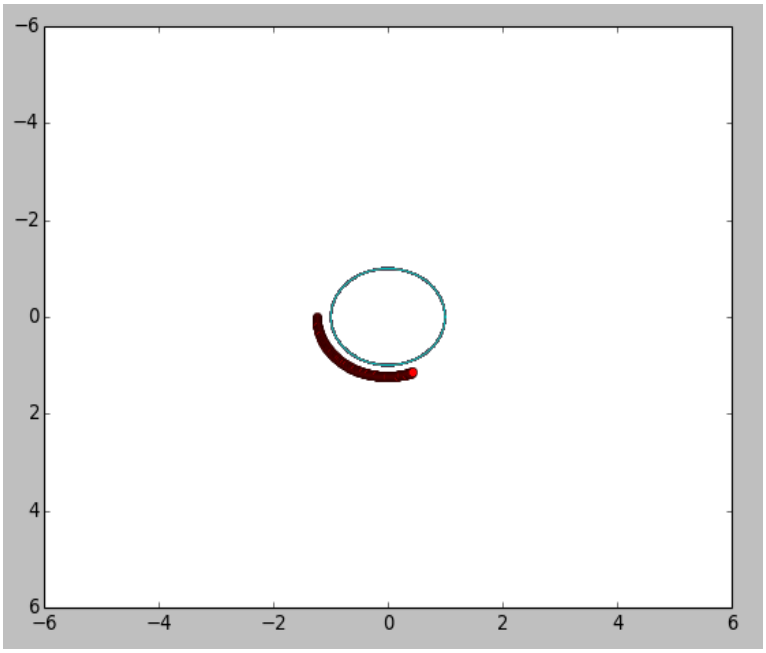
Question 1
time_step = 0.01
Uniform Field Strength = 3
Number of Panels = 30

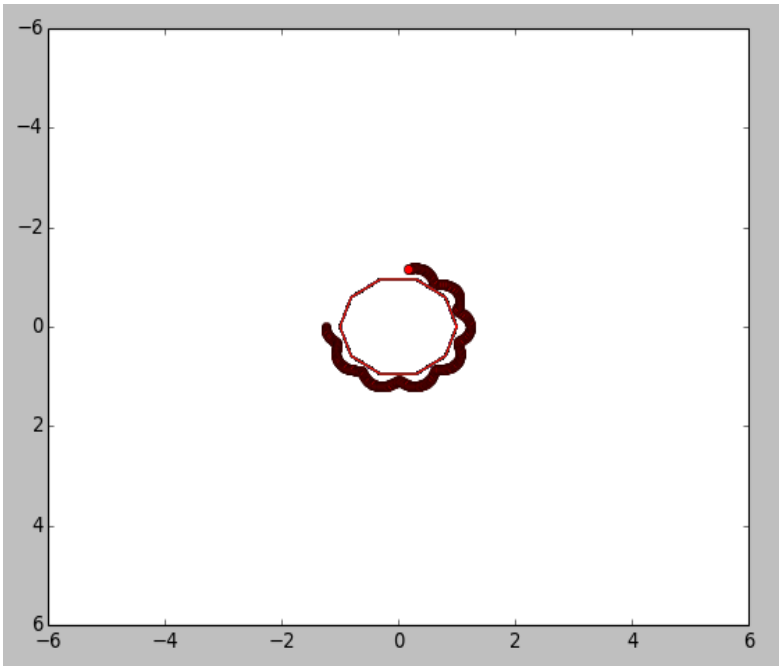


The traces enter the cylinder if the discretization length of Panels on th Cylinder is large. We face similar situationwhen strength of uniform flow is arbitarily high.

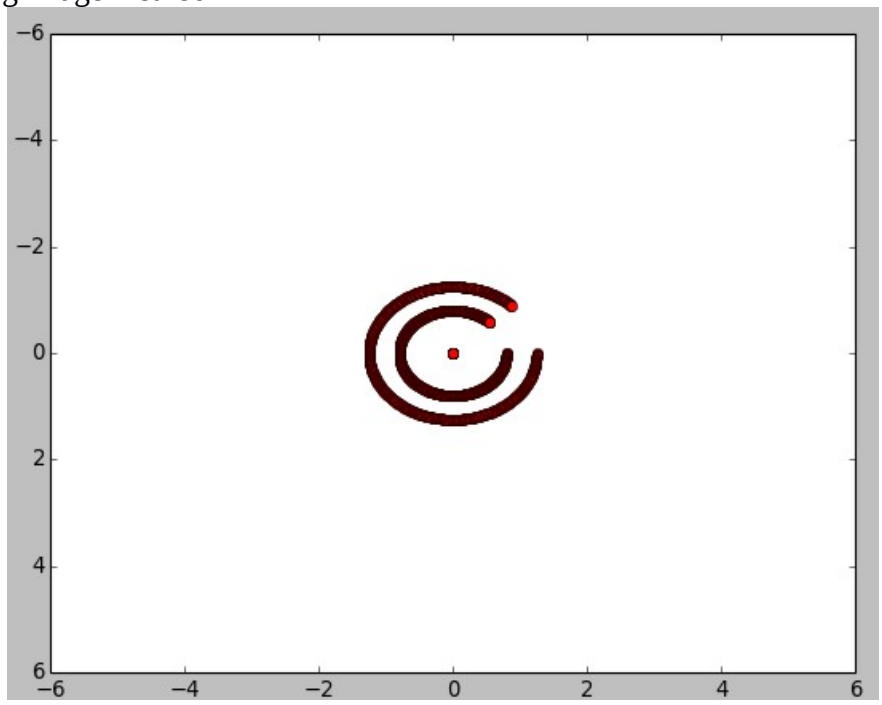
Question 2
time_step = 0.1
Strength of Vortex = 5
Number of Panels = 30
Cylinder Radius = 1
Simulation Time = 5 sec



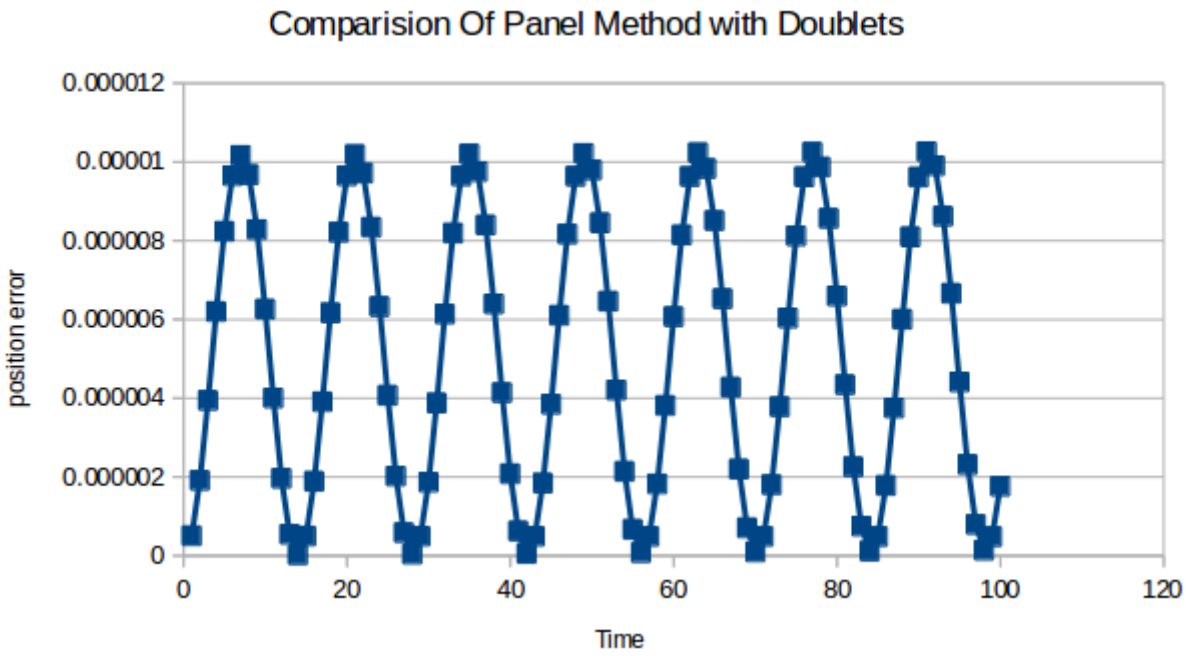
Num Of Panels = 10
Strength = 5



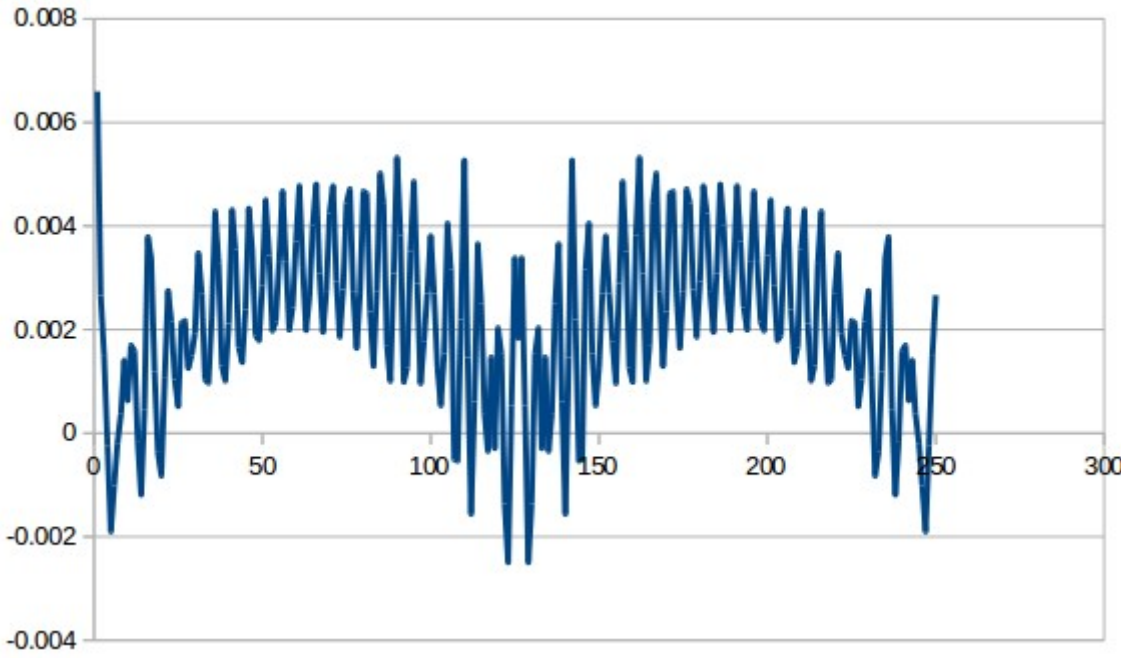
Question 3
Simulation using image method



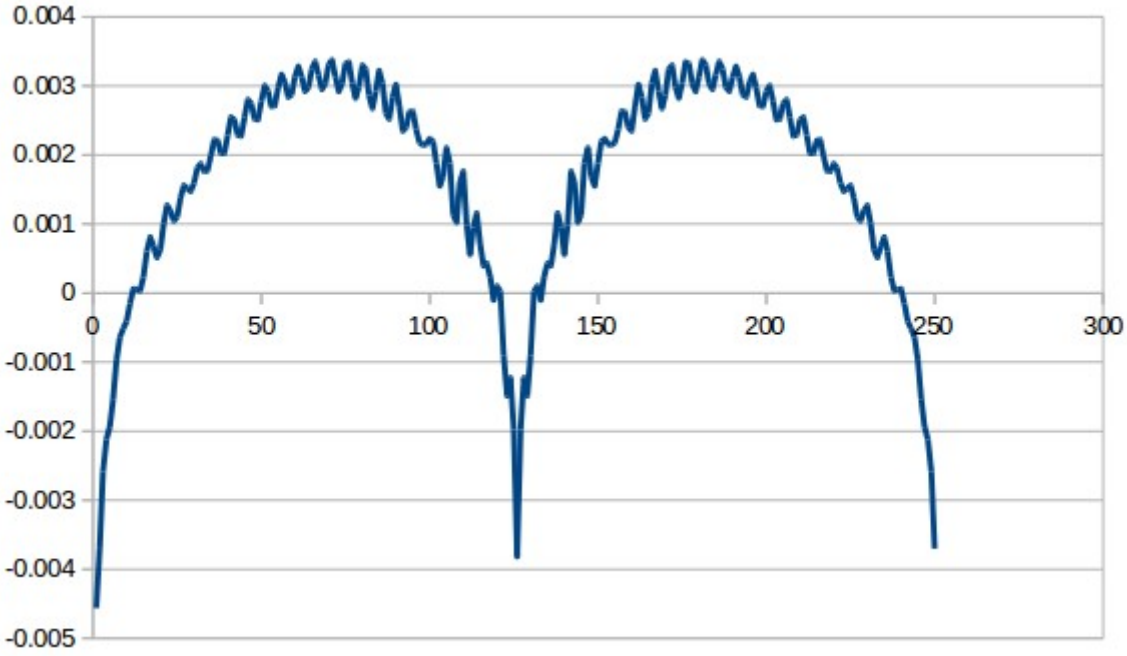
Error Comparision with method of images:



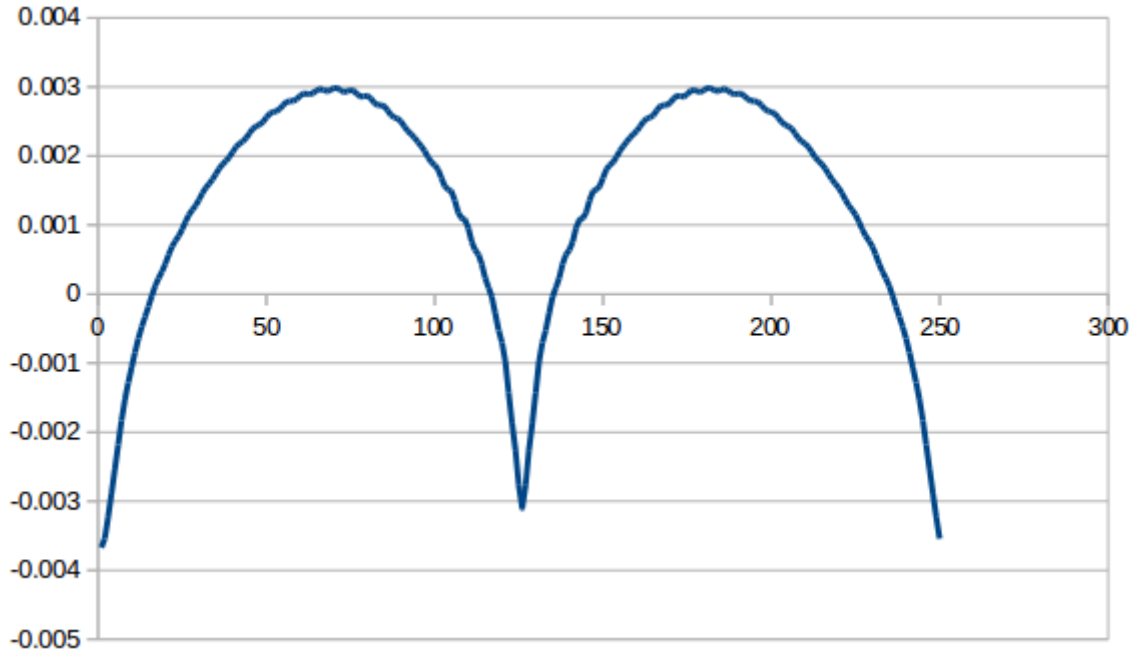
Question 4:
For Delta = 0.01



For Delta = 0.05



For Delta = 0.1



Conclusion:
As we approach 0, The oscillations begin to increase. For higher deltas, the variation is smooth.
Basically, its a sinosouid with small frequency superimosed with sinosoiud with larger frequencies.
Magnitude of these large frequencies increase as delta -> 0