

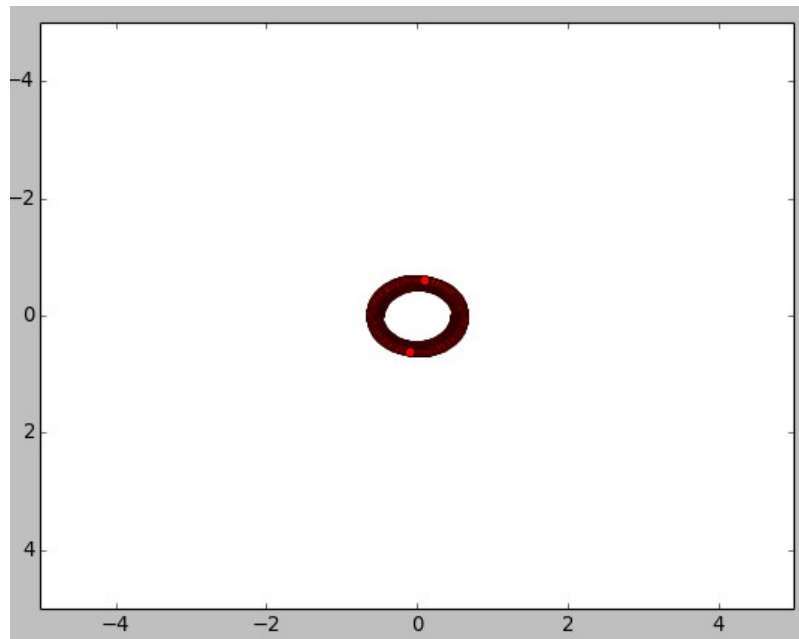
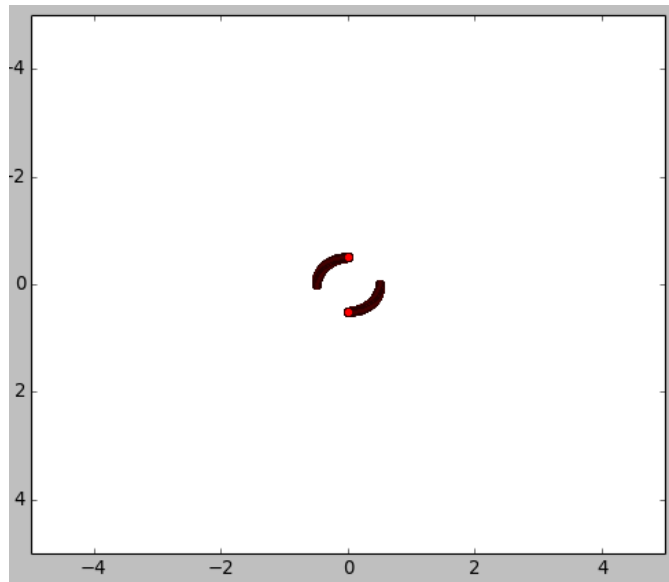
Assignment 1

Devyesh Tandon
120010008

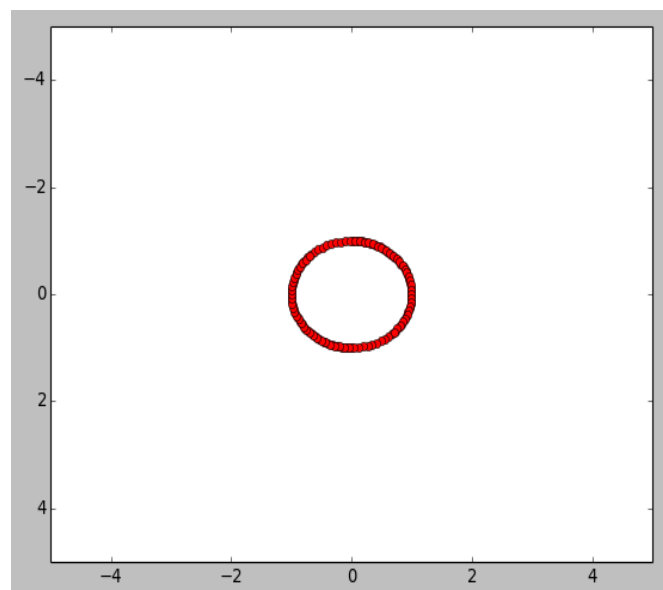
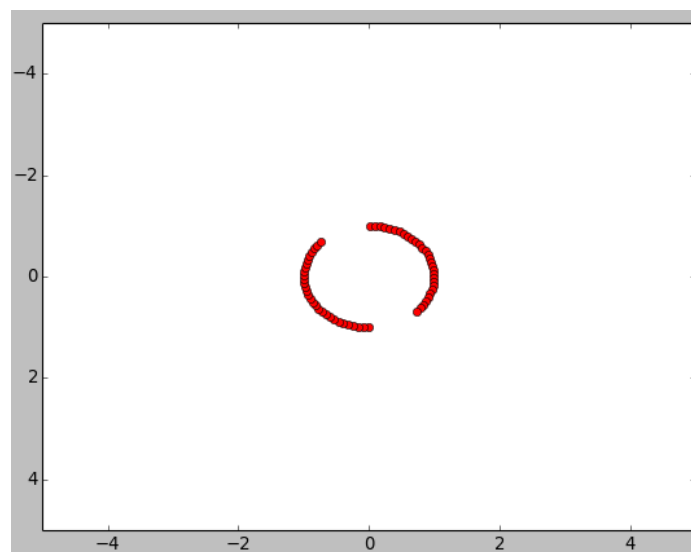
Part 1:

Euler:

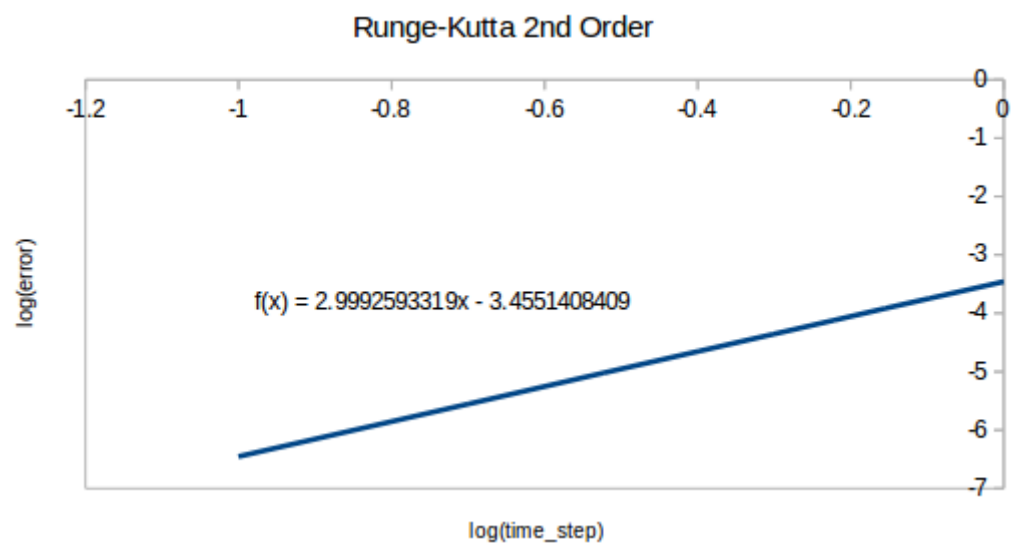
Time Step = 0.1



RK2:
Time Step = 0.1



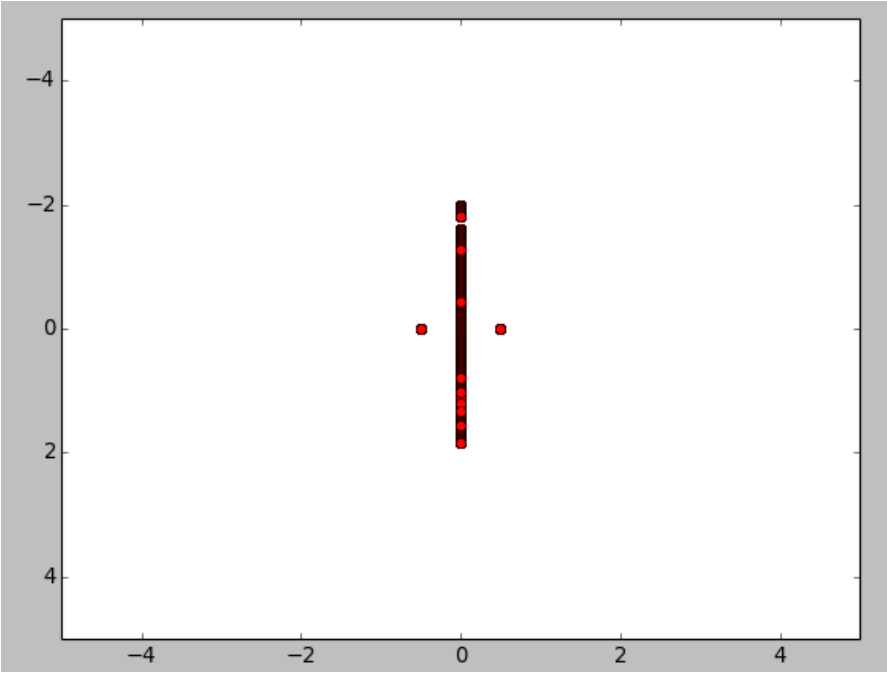
RK2 Proof



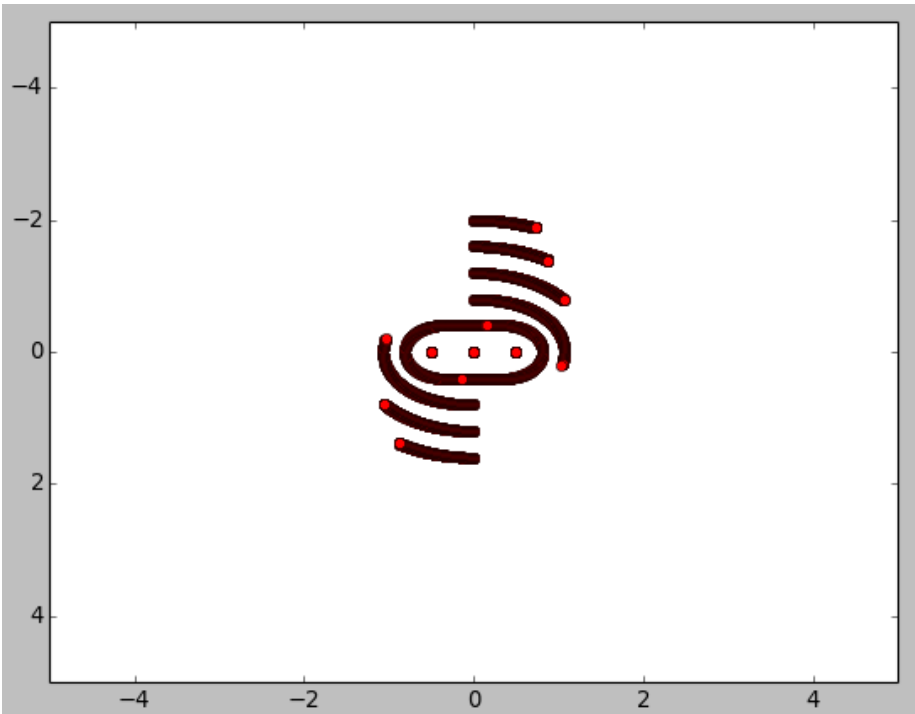
log(time_step)	log(error)
0	-3.458093998
-0.096910013	-3.745113489
-0.15490196	-3.916743658
-0.2218487496	-4.120241767
-0.3010299957	-4.358674448
-0.3979400087	-4.649125228
-0.5228787453	-5.022490395
-0.6989700043	-5.551855071
-1	-6.454853763

Part2 :
Vortex Strength Magnitude = 1

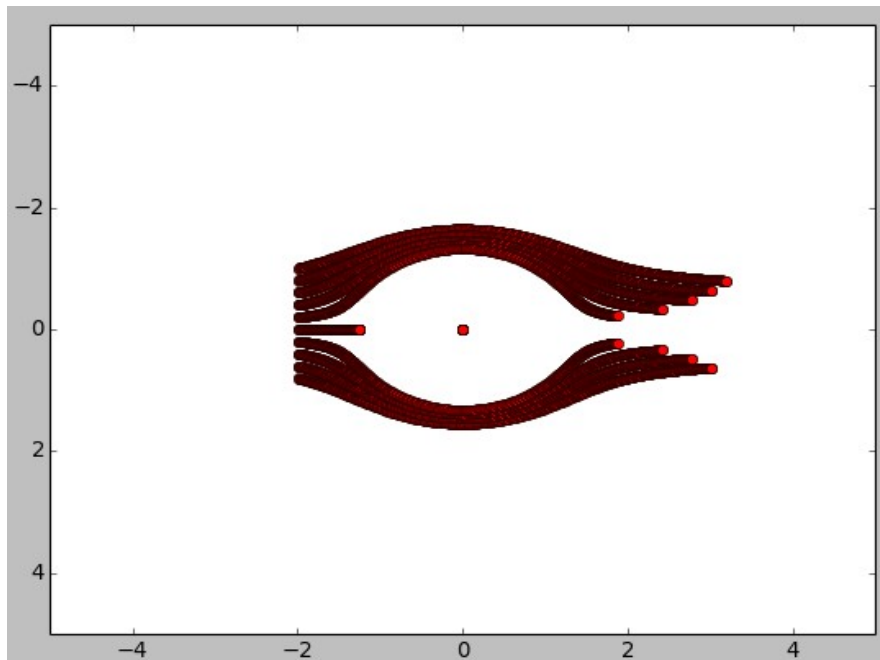
Fixed Vortex Points
Opposite Direction Rotation:



Same Direction Rotation:



Part 3:
Doublet and Uniform flow



Part 4:
Source at $(-0.25, 0)$ and sink at $(0.25, 0)$.
Time ~ 50 sec

