AE-625 Assignment 1

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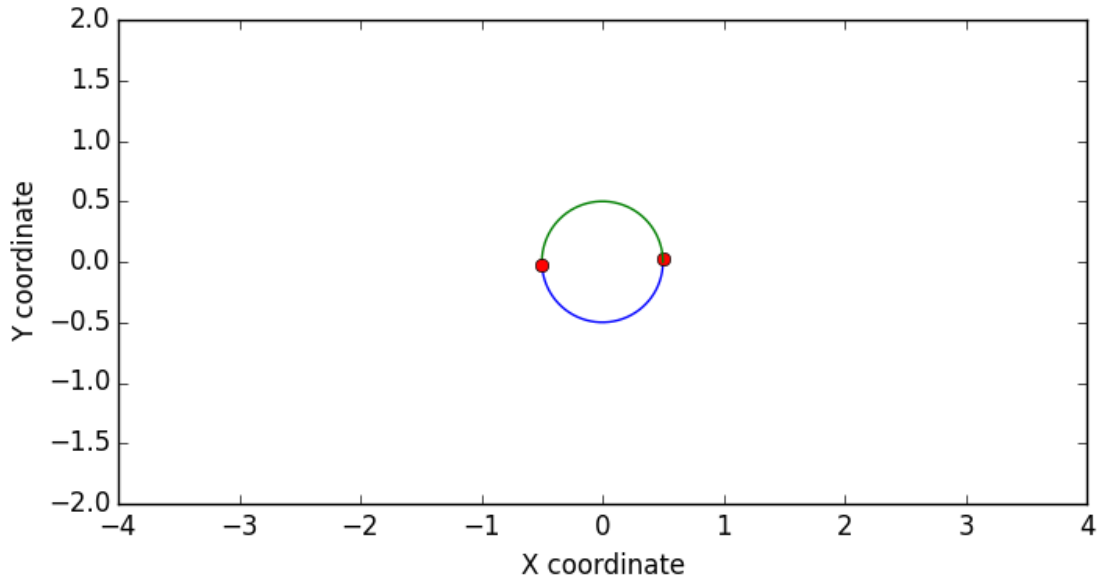
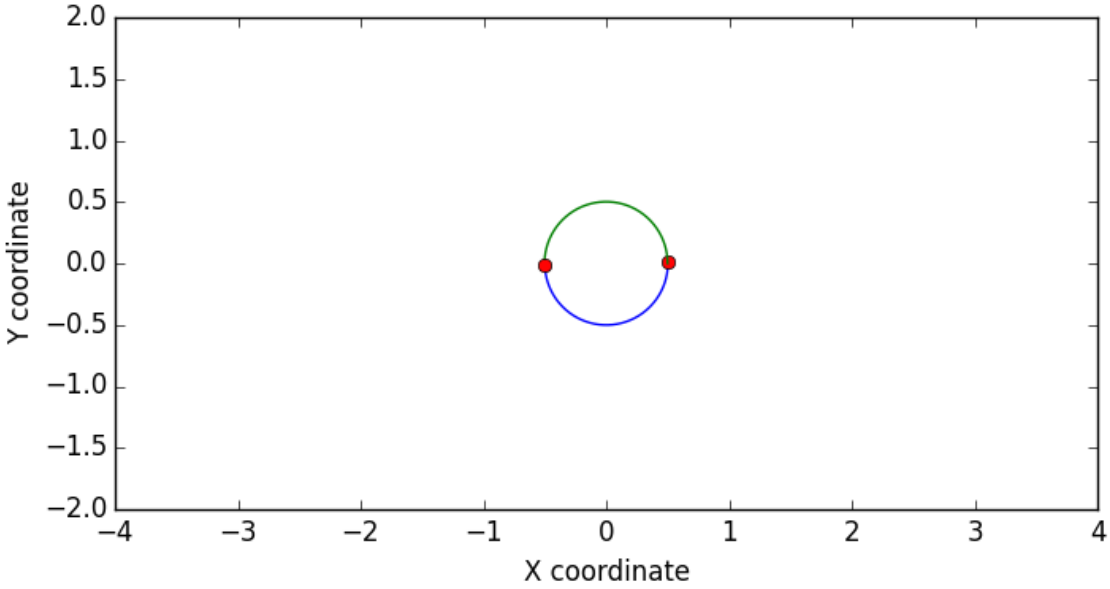
Time step size for all simulations : 0.01 sec

1. As expected the vortices move in a circle with the radius defined by the distance between them and their strength. since their strength is

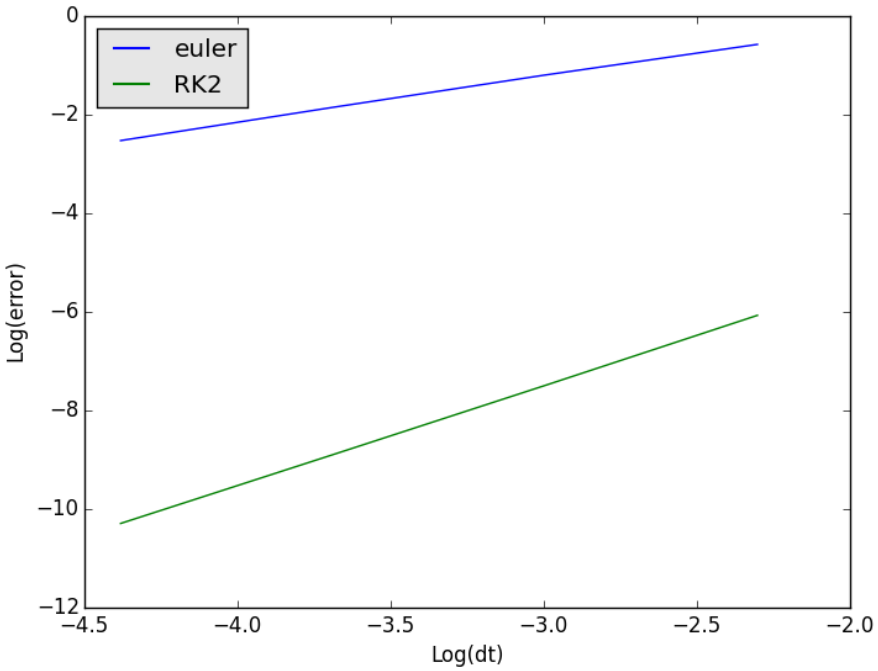


equal and in the same direction, they move in a circle.

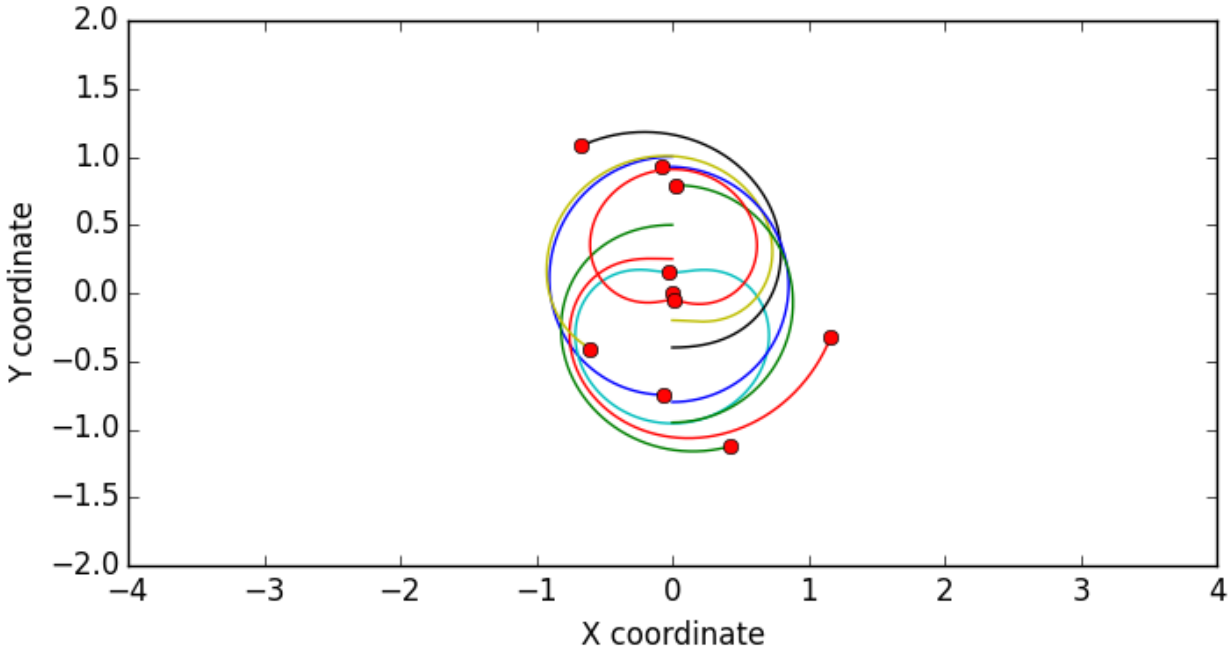


Runge-Kutta 2nd order

Euler



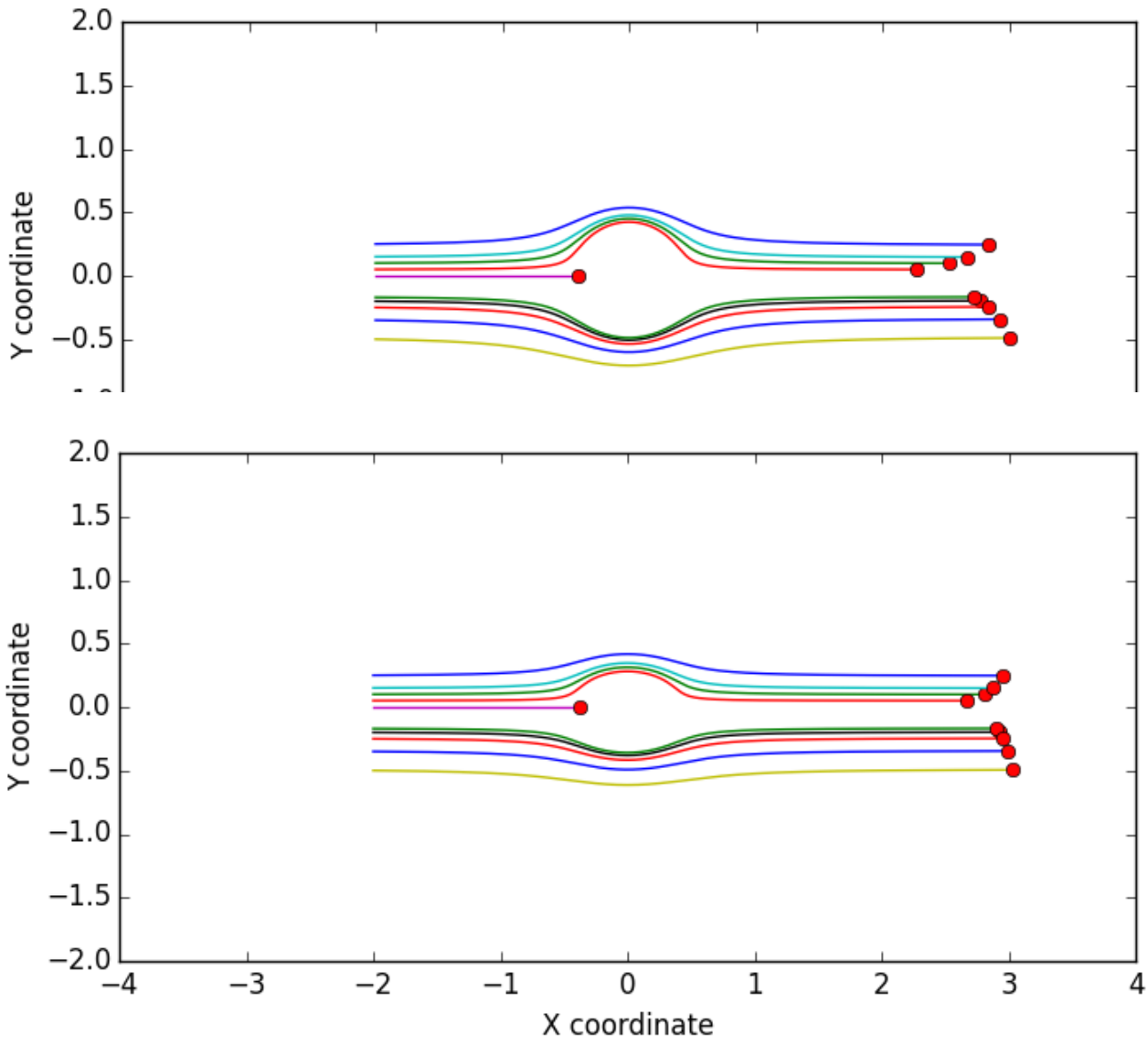
integration



Convergence of Euler and RK2

2. Tracers in the moving vortex field (simulated for 10 sec)

3. Tracers in Doublet+uniform flow field (5 sec) (Doublet imposed to stay stationary)



4.a Tracers in Uniform+Source+sink field (5 sec) (source+sink forced to stay stationary)
4.b Source + Sink (non moving)