Homework #10 • MATH 462 • Vortex Flows

- submit your write-up by noon, Wednesday 14 April.

A) Trapped Vortices? (3 pages + plot, 10pts) This problem is based on #5.12 in Acheson. The basic ideas are contained in the first 3 Sections of Chapter 5. Apply the Helmholtz rule (p 162) for vortex line motion to obtain the coupled ODEs for the complex-valued positions $z_1(t)$ and $z_2(t)$. Verify the given solution, then plot the implied steady streamfunction and show that it recovers Figure 5.19b.

Bonus: Investigate the idea in the question that follows (#5.13) by using an ODE solver to demonstrate the dynamics of a small initial disturbance to theis steady configuration.