FLUID DYNAMICS 3 2005/2006

Richard Porter
http://www.maths.bris.ac.uk/~marp/fluids3/fluids3.html

Prelimaries

Course information

Recommended texts

Revision of vector operations

Formulae in cylindrical polar coordinates

Formulae in spherical polar coordinates

1 Introduction & Basic ideas

1.1 Introductory remarks

1.2 What is a fluid ?

1.3 Lagrangian and Eulerian descriptions of the flow

1.4 Particle paths, streamlines and streaklines

1.5 The Lagrangian derivative

1.6 Mass conservation

1.7 Incompressibility

1.8 Streamfunctions (for incompressible flows)

1.8.1 Two-dimensional flows

1.8.2 Three-dimensional (axisymmetric) flows

1.9 Kinematic boundary condition

1.10 The motion near a point in a fluid

B.2: Cylindrical polar coordinates

B.3: Axisymmetric solutions in spherical polar coordinates