2.25

2   Static Fluids

2.1   Equation for pressure distribution in a fluid which is static in *some* reference frame (its "rest-frame").

2.2   Boundary condition on pressure at a density discontinuity in the absence of surface   tension.

2.3   Pressure distribution in a uniform gravitational field of fluid with constant density. Manometers and barometers, forces on dams and gates, buoyancy forces on submerged and floating bodies, hot-air balloons. Stability.

2.4   Compressible fluids in static equilibrium in a uniform gravitational field. The isothermal ideal-gas model of the atmosphere, and the constant-compressibility model of the ocean.

2.5   Pressure distribution in accelerating rest-frames. Liquids at rest in linearly accelerating and rotating reference frames; pressure distribution in a gas centrifuge.

Read: Fay   Chapt. 2, pp 44-75

Problems: Shapiro & Sonin   1.3, 1.4, 1.7, 1.8, 1.9, 1.10, 1.11, 1.18