

Equations for Fluid Dynamics

Variation of Pressure with depth

$$P = P_0 + \rho gh$$

P=Pressure, ρ =volume density; h=depth, g=acceleration due to gravity
 P_0 is pressure at some fixed location

Continuity Equation

$$A_1 V_1 = A_2 V_2$$

A=cross sectional area, V=fluid velocity

Bernoulli's Equation

$$P + \rho gh + \frac{1}{2} \rho V^2 = \text{constant}$$

P=pressure, ρ =mass/volume (density), g=acceleration due to gravity, h=position along y,
V=speed