

Equation Sheet for Phys 185 F2013 Final Exam

$F_c = m \frac{v^2}{R}$	Centripetal/fugal force
$F_g = mg$	Force of gravity
$g = 9.8 \frac{\text{m}}{\text{s}^2}$	Gravitational constant near surface of Earth
$\sum F_x = 0$	Equilibrium Condition x-axis
$\sum F_y = 0$	Equilibrium Condition y-axis
$\sum \tau = 0$	Equilibrium Condition, rotation
$\sum F = ma$	Newton's Second Law
$K_v = \frac{1}{2}mv^2$	Linear Kinetic Energy
$U_g = mgh$	Grav. potential energy when $U_g = 0$ set at ground
$Y = \frac{FL}{A\Delta L}$	Young's Modulus
$B = -V_o \frac{\Delta P}{\Delta V}$	Bulk Modulus
$\rho = \frac{m}{V}$	Density for homogeneous substance
$\rho_w = 1000 \frac{\text{kg}}{\text{m}^3}$	Density of water (generic)
$P = \frac{F}{A}$	Pressure
$P_{atm} = 1.013 \times 10^5 \text{ Pa}$	Air pressure at sea-level and 20°C
$P = P_{atm} + \rho_w gy$	Pressure y meters under water
$\text{Pa} = \frac{N}{\text{m}^2}$	Pascal, unit for pressure
$\mathbf{B} = \rho_w g V_{\text{disp}}$	Buoyancy force for water