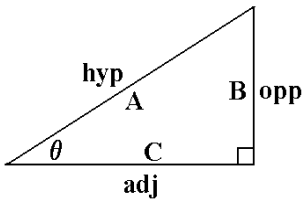
PHY 131 THINGS TO KNOW

The following items were deliberately left off of the "Tables and Formulas" handout because you should know them.

e'

sec. 2:
Definitions of trig functions:

$\sin\theta = \text{opp/hyp}, \quad \cos\theta = \text{adj/hyp}, \quad \tan\theta = \text{opp/adj}$



Pythagorean theorem: $A^2 = B^2 + C^2$

sec. 3:
Newton's 1st: If no net force, a body follows a straight line at a constant speed.
Newton's 2nd: $\Sigma F = ma$ (Σ means summation.)
Newton's 3rd (in sec 6, actually): If object A exerts a force on object B, then B exerts an equal and opposite force on A.

Weight: $W = mg$

sec. 5:
Kinetic energy: $KE = \frac{1}{2}mv^2$

Gravitational potential energy: $U_g = mgh$

Total mechanical energy: $E = KE + U$

Conservation of energy: Total energy (mechanical + all other forms) of an isolated system is constant.

sec. 6:
Momentum: $p = mv$

Conservation of momentum: Total momentum of an isolated system (no external forces) is constant.

sec. 9:
Conservation of angular momentum: If no external torques, a system's total angular momentum is constant.

sec 10:
$T = 1/f$ (T = period, f = frequency)

sec 11:
$v = f\lambda, \quad f = v/\lambda, \quad \lambda = v/f$ (v = wave's speed, f = frequency, λ = wavelength

sec.12:
pressure: $P = F/A$ (force per unit area)

Ideal gas law: $PV = nRT$
P = absolute pressure, V = volume, n = number of moles, R = gas constant, T = absolute temperature

sec 14:
Definition of density: $\rho = m/V$ (mass per unit volume)