**Variables**

***X*** indicates a vector

X indicates a scalar

A = area

***a*** = acceleration

C = specific heat

e = efficiency

***F*** = force

f = frequency

g = grav. acceleration

h = height/depth

I = moment of inertia

I = sound intensity

K = kinetic energy

k = spring constant

L = latent heat

l = length

m = mass

***p*** = momentum

P = power

p = pressure

Q = heat

r = radius

T = period

T = temperature

t = time

U = potential energy

V = volume

***v*** = velocity

W = work

***x, y*** = position

***α*** = angular acceleration

= sound (in Decibels)

ρ = density

= torque

***ω*** = angular velocity

**Kinematics**

***x***(t)=***x0***+***v0***t+***a***t2

***v***(t)=***v***0+***a***t

***vf***2=***v0***2+2***a***(***Δx***)

***F*** = -k***Δx***

***p***=m***v***

m1***v1*** = m2***v2***

**Work, Energy, and Power**

K0 + U0 + WNC = Kf + Uf

K=m***v***2



U = mgh

Pavg =

**Rotational Motion**

***v***=r***ω***

K=

***a***=r***α***

[Linear motion equations can be translated into rotational motion equations by substituting ***α*** for ***a***, ***ω*** for ***v***, ***θ*** for ***x***, and I for m.]

**Oscillations, Waves, and Fluids**

***ω***==

= =

p +ρ***v***2 + ρgh =constant

p =

ρ1A1***v1*** = ρ2A2***v2***

y=Asin(k***x***-***ω***t)

**Thermodynamics**

Q = mC

Q = mL

eCarnot = 1 -

K =