***Conceptual Physics***

***Formulas and Conversion:***

1 gal = 3.78 L 1 mile = 5280 feet = 1.609 km

1 m = 3.281 ft 1 cm = 0.394 inches

Milli = 10-3 Kilo = 103 Centi = 10-2

  

V = ∆d/∆t a=(Vf-V0)/t v=(v + v0)/2 g = -9.8m/s2

v=v0+at ∆d = v0∆t+1/2g∆t2 v2=v02+2a∆d x=y a = g

F=ma W = mg Ffr= μFN *J* = Ft

P=W/t 1 hp = 746 W AMA/IMA X 100% = Efficiency = Wout/Win X 100%

IMA=din/dout AMA = Fout/Fin m1v1 + m2v2 = m1v1’ + m2v2’ v1 - v2 = v2’ - v1’

KE2+PE2= KE1+PE1 ½mv21 + mgh1 = ½mv22 + mgh2 PE=mgh

PESpring= ½kx2 FSpring= -kx WNC=∆KE+∆PE

W=F·d W=F·d cosθ KE=½mv2 Fr=mar Fr=mv2/r

ar=v2/r T=1/f v=2πr/T Earth’s Radius = 6.38 x 103 km

Earth’s Mass = 5.98 x 1024 kg G=6.67 x 10–11 Nm2/kg2 F=Gm1m2/d2  d=r)

Xcm=(mAxA+mBxB+…)/(mA+mB+…) V = λf TPendulum=2π TSpring=2π

τ = *rF* sin θ    

velocity of sound in air = 343 m/secvelocity of sound in saltwater = 1560 m/sec

n1sinθ1 = n2sinθ2 Index of Refraction: n water = 1.33 n air=1.00 n glass = 1.50

Source moving toward Stationary observer: 

Source moving away from stationary observer:

Observer moving toward stationary source: 

Observer moving away from stationary source: 

Vs = Velocity of source F = kQ1Q2/r2

Vo = Velocity of observer k=8.988x109Nm2/C2

Resistor Series Req = R1+R2+R3 Resistor Parallel 1/Req = 1/R1+1/R2+1/R3

Vb-Va = Wba/q ∆PE = qVba P IV = I2R V = IR R = ρL/A A = ¼πd2