Motion Equations

$v = d/t$

$a = \Delta v/\Delta t$

$d = ½(v_f + v_i)t$

$d = V_i t + ½at^2$

$V_f^2 = V_i^2 + 2ad$

$V_f = V_i + at$

Force Equations

$F = ma$

Friction

$F_f = \mu F_N$

Trig

$\sin \theta$= opp/hyp $\cos \theta$=adj/hyp

$\tan \theta$= opp/adj

Motion in two dimensions

$R=(v_o^2 \sin 2\theta)/g$ $v=2 \pi r/T$ $a_c=(4 \pi^2 r)/T^2$ $a_c=v^2/r$ $F_c=m(4 \pi^2 r/T^2)$

$t = -2v^y/g$

Pendulum

$T=2 \pi\sqrt{l/g}$

Momentum

$p = mv$

$F \Delta t = m \Delta t$

$\Delta p = m\Delta v$

$F\Delta t = \Delta p$

$m_A v_A = - m_B v_B$

$p_a+p_b = p_a'+p_b'$

Universal Gravity

$(T_a/T_b)^2=(R_a/R_b)^3$ $F=G(m_1 m_2/d^2)$ $T_p^2=(4\pi^2/GM_s)r_{ps}^3$

$M_e=gr_e^2/G$ $g=GM_e/r^2$ $v=\sqrt{(GM_E/r)}$

$T=2\pi\sqrt{(r^3/GM_E)}$ $G=6.7\text{x}10^{-11} N{\cdot}m^2/kg^2$

Electricity

$F=Kqq^1/d^2$ $K=9\text{x}10^9\ N{\cdot}m^2/C^2$

1 coulomb(q) = $6.25\text{x}10^{18}$ electrons   Electric Field(E) =E=F/q

Power=Work/time   Amp(I) = coulomb/second (I=q/t)

Volt(V)= Joule/coulomb (V=w/q)   V=Ed

V=IR $P=I^2R$, $P=(V^2/r)$

Energy(Q)=I^2Rt,   Energy=Vit, Energy=CV^2 Kilowatts x Hours = Kilowatt Hours

Capacitance(C)= q/V   Joule/coulomb (V=w/q)

$V_2=VR_2/R_1 + R_2$

$1/R=1/R_1+1/R_2$ Resistance in a parallel $R=R_1+R_2+R_3$ Resistance in series