

$$\bar{v} = \Delta d / \Delta t$$

$$v_f = a \cdot t + v_o$$

$$d_f = \frac{1}{2} \cdot a \cdot t^2 + v_o \cdot t + d_o$$

$$v_f^2 = v_o^2 + 2 \cdot a \cdot (d_f - d_o)$$

$$\Sigma F = m \cdot a$$

$$F_f = F_N \cdot \mu$$

$$a_c = \frac{v^2}{r}$$

$$F_c = \frac{m \cdot v^2}{r}$$

$$\vec{T} = \vec{r} \times \vec{F} = |\vec{r}| \cdot |\vec{F}| \cdot \sin \alpha$$

$$\vec{p} = m \cdot \vec{v}$$

$$\vec{F} \cdot \Delta t = \Delta \vec{p}$$

$$KE = \frac{1}{2} \cdot m \cdot v^2$$

$$GPE = m \cdot g \cdot \Delta h$$

$$W = |\vec{F}| \cdot |\vec{d}| \cdot \cos \alpha$$

$$P = \frac{W}{t} = F \cdot v$$

$$F_s = -k \cdot \Delta d$$

$$EPE = \frac{1}{2} \cdot k \cdot \Delta d^2$$

$$T_s = 2 \cdot \pi \cdot \sqrt{m/k}$$

$$T_p = 2 \cdot \pi \cdot \sqrt{l/g}$$

$$T = 1/f$$

$$F_g = \frac{G \cdot m_1 \cdot m_2}{r^2}$$

$$v = f \cdot \lambda$$

$$n = \frac{c}{v}$$

$$n_1 \cdot \sin \theta_1 = n_2 \cdot \sin \theta_2$$

$$\sin \theta_c = \frac{n_2}{n_1}$$

$$\frac{1}{d_o} + \frac{1}{d_i} = \frac{1}{f}$$

$$M = \frac{h_i}{h_o} = \left| \frac{d_i}{d_o} \right|$$

$$f = R/2$$

$$n \cdot \lambda = d \cdot \sin \theta_n$$

$$c = 3.0 \cdot 10^8 \text{ m / sec}$$

$$G = 6.67 \cdot 10^{-11} \frac{\text{N} \cdot \text{m}^2}{\text{sec}^2}$$

$$\text{if } a \cdot x^2 + b \cdot x + c = 0$$

$$\text{then } x = \frac{-b \pm \sqrt{b^2 - 4 \cdot a \cdot c}}{2 \cdot a}$$

t = time

a = acceleration

a_c = centripetal acceleration

F = force

f = frequency

h = height

KE = kinetic energy

GPE = gravitational potential energy

k = spring constant

l = length

F_n = normal force

F_f = force of friction

F_c = centripetal force

μ = coefficient of friction

g = acceleration of gravity

p = momentum

θ = any angle

d = any distance

v = velocity or speed

P = power

λ = wavelength

T_p = period of a pendulum

T_s = period of mass on spring

c = speed of light in a vacuum

d_o = object distance
or initial displacement

d_i = image distance

d_f = final displacement

M = magnification

r = R = radius

n = index of refraction
or any integer

h_o = height of object

h_i = height of image

Δ = change in

T = period or torque

m = mass

EPE = energy stored in
a spring

W = work

θ_c = critical angle

α = any angle

v_o = initial velocity

v_f = final velocity