Reference Guide & Formula Sheet for Physics

Dr. Hoselton & Mr. Price

#5 Components of a Vector

[illegible]

#6 Weight = mg

g = 9.81 m/s² near the surface of the Earth [illegible]

Density = mass / volume

$\rho = \frac{m}{V}$ (unit: kg / m³)

#7 Ave speed = distance / time = v = d/t

Ave velocity = displacement / time = v = d/t

Ave acceleration = change in velocity / time

#8 Friction Force

$F_f = \mu F_n$

[illegible]

#9 Torque

[illegible]

#11 Newton's Second Law

[illegible]

#12 Work = F·(Dcos θ)

[illegible]

#14 Power = rate of work done

$Power = \frac{Work}{time}$ unit : watt

Efficiency = Work / Energy

Mechanical Advantage = force out / force in

#19 Constant Acceleration Linear Motion

[illegible]

#20 Heating a Solid, Liquid or Gas

Q = mcΔT (no phase changes!)

Q = the heat added

c = specific heat

ΔT = temperature change, K

#21 Linear Momentum

momentum = p = mv = mass × velocity

momentum is conserved in collisions

#23 Center of Mass - point masses on a line

[illegible]

#25 Angular Speed vs. Linear Speed

Linear speed = v = rω = r × angular speed

#26 Pressure under Water

P = ρgh

h = depth of water

ρ = density of water

#28 Universal Gravitation

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

G = 6.67 E-11 N·m²/kg²

#29 Mechanical Energy

[illegible]

#30 Impulse = Change in Momentum

[illegible]

#31 Snell's Law

[illegible]

Index of Refraction

[illegible]

#32 Ideal Gas Law

PV = nRT

n = # of moles of gas

R = gas law constant

= 8.31 J / K mole

#34 Periodic Waves

[illegible]

T = period of wave

#35 Constant Acceleration Circular Motion

[illegible]

[illegible]