0625 Physics formula sheet Cheat Sheet

by lynm via cheatography.com/216518/cs/47338/

Energy

kE = 1/2mv2

F = ∆p/∆t

∆GPE = mg∆h

W = Fd = ∆E

W = Fd

(%) efficiency = (useful energy output) (total energy input) × 100%

(%) efficiency = (useful power output) (total power input) × 100%

P = W / t

P = ∆E/ t

p = F / A

∆p = ρg∆h

T (in K) = θ (in °C) + 273

pV = constant

c = ∆E / m∆θ

Forces

∆p = ρg∆h (liquid pressure)

Pressure = force / area

W = m x g

kE = 1/2mv2

a = v-u / t

R.F = F.F - B.F

R.F or F = m x a

R.F or F = m x a = m x (v-u/t) = mv - mu /t = change in momentum/t

F = ∆ momentum or P/∆t

impulse = R.F or F x ∆t

impulse = change in momentum/ change in time

m1u1+ m2u2 = m1v1+ m2v2 (conservation of momentum)

m1u1 + m2u2 = (m1+m2) x V (when objects stick together)

Thermal physics

kE = 1/2mv2

F = ∆p/∆t

p is inversely proportional to V

W = Fd = ∆E

p1v1 = p2v2

c = ∆ E m∆θ

specific heat capacity = change in thermal energy/mass x change in temperature

P = ∆E/ t

p = F / A

∆p = ρg∆h

T (in K) = θ (in °C) + 273

pV = constant

c = ∆E / m∆θ

waves

where n is the refractive index, V is speed of light

n = sin(i)/sin(r)

n = 1/ sin(c)

n2/n1 = V1/V2 = sin(i)/sin(r)

n (in air) = 1

V (in air) = 3x 10^8

v = f λ

Electrical quantities

potential difference is the work done by a unit charge passing through a component, measured between two points in volts (V)

electromotive force (e.m.f.) is the electrical work done by a source in moving a unit charge around a complete circuit measured in volts (V)

kilowatt-hour (kWh) 1000 watts per one hour	1 kWh = 3.6 x 10^6 J

resistance, the opposition of a component to the flow of electric current through it measured in ohms (Ω)

charge is measured in coulombs, where one coloumb is he charge on 6.24 x 10^18 electrons

Electrical quantities (cont)

R1/R2 = V1/V2

R total = R1 x R2 = R1 + R2 or product/sum

Electricity

I = Q / t

emf = W/Q

pd = W/Q

R = V/I

P = IV

E = IVt

R1/R2 = V1/V2

R total = R1 x R2 = R1 + R2 or product/sum

Motion

Density = Mass/ Volume

(constant) S = distance / time

a = v-u / t

D (while accelerating) = v+u x t

D = area under the graph

W = m x g

R.F/ F = m x a

R.F = F.F - B.F

Moment = force x perpendicular distance from the pivot

Pressure = force / area

(Liquid) pressure = Density x g x height

X = L new - L original

F = k/x , where k is the spring constant