WJEC

GCSE Equations

Double / Physics

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Equations in **bold are for Higher Tier** only

Equations highlighted in blue are for Physics only (not Double)

current = voltage / resistance

$R = R_1 + R_2$ (resistors in series)

$\frac{1}{R} = \frac{1}{R_1} + \frac{1}{R_2}$ (resistors in parallel)

energy transferred = power x time

power = voltage x current

power = current² x resistance

$$\%\ \text{efficiency} = \frac{\text{energy (or power) usefully transferred}}{\text{total energy (or power) supplied}} \times 100$$

units used (kWh) = power (kW) x time (h)

cost = units used x cost per unit

density = mass / volume

wave speed = wavelength x frequency

speed = distance / time

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acceleration (or deceleration) = change in velocity / time

resultant force = mass x acceleration

weight = mass x gravitational field strength

work done = force x distance moved in the direction of the force

kinetic energy = ½ x mass x velocity²

change in potential energy = mass x gravitational field strength x change in height

force = spring constant x extension

work done in stretching a spring = ½ x force x extension

pressure = force / area

pV / T = constant (for a gas)

heat transfer for a change in temperature = mass x specific heat capacity x change in temperature

heat transfer for a change of state = mass x specific latent heat

force on a conductor = strength of the field x current x length

$$\frac{\text{voltage across the primary coil}}{\text{voltage across the secondary coil}} = \frac{\text{number of turns in the primary coil}}{\text{number of turns in the secondary coil}}$$

momentum = mass x velocity

force = change in momentum / time

$v = u + at$

$x = \frac{u + v}{2} t$

$x = ut + \frac{1}{2}at^2$

$v^2 = u^2 + 2ax$

moment = force x distance normal to the direction of the force