OCR B 21st Century Science

GCSE Data Sheet

v1.0 Jun 2021

Combined / Physics

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

Equation highlighted in blue are for Physics only (not Combined)

wave speed = frequency x wavelength

energy transferred = power x time

$$\text{efficiency} = \frac{\text{useful energy transferred}}{\text{total energy transferred}}$$

charge = current x time

potential difference = current x resistance

potential difference = work done / charge

power = energy / time

energy transferred = charge x potential difference

power = potential difference x current

power = current^2 x resistance

$$\text{potential difference across primary coil} \times \text{current in primary coil} = \text{potential difference across secondary coil} \times \text{current in secondary coil}$$

force = magnetic flux density x current x length of conductor

$$\frac{\textbf{potential difference across primary coil}}{\textbf{potential difference across secondary coil}} = \frac{\textbf{number of turns in primary coil}}{\textbf{number of turns in secondary coil}}$$

weight = mass x gravitational field strength

average speed = distance / time

acceleration = change in speed / time taken

(final speed)^2 – (initial speed)^2 = 2 x acceleration x distance

momentum = mass x velocity

change in momentum = resultant force x time for which it acts

moment of a force = force x distance (normal to the direction of the force)

force = mass x acceleration

work done = force x distance (along the line of action of the force)

kinetic energy = ½ x mass x speed^2

gravitational potential energy = mass x gravitational field strength x height

density = mass / volume

change in internal energy = mass x specific heat capacity x change in temperature

energy to cause a change of state = mass x specific latent heat

force exerted by a spring = spring constant x extension

energy stored in a stretched spring = ½ x spring constant x extension^2

pressure = force normal to surface / area of surface

pressure x volume = constant (for a gas)

pressure = density x gravitational field strength x depth