AQA GCSE Physics Equations **H = Higher Tier Only**

Paper 1 – Equations after triple line are provided on the equation sheet.

P1	work done = force x distance (along the line of action of the force)	$W = F\ s$
P1	kinetic energy = 0.5 x mass x (speed)^2	$E_k = ½\ m\ v^2$
P1	gravitational potential energy = mass x gravitational field strength (g) x height	$E_p = m\ g\ h$
P1	power = energy transferred / time (power = work done / time P= W / t)	$P = E / t$
P1	efficiency = useful output energy transfer / total input energy transfer	$Eff = E_{out} / E_{in}$
P1	efficiency = useful power output / total power input	$Eff = P_{out} / P_{in}$
P4	charge flow = current x time	$Q = I\ t$
P4	potential difference = current x resistance	$V = I\ R$
P5	power = potential difference x current	$P = V\ I$
P5	power = (current)^2 x resistance	$P = I^2\ R$
P5	energy transferred = charge flow x potential difference	$E = Q\ V$
P6	density = mass / volume	$\rho = m / V$
P1	elastic potential energy = 0.5 x spring constant x (extension)^2	$E_e = ½\ k\ e^2$
P2 P6	change in thermal energy = mass x specific heat capacity x temperature change	$\Delta E = m\ c\ \Delta\theta$
P6	thermal energy for a change of state = mass x specific latent heat	$E = m\ L$
P6	For gases: pressure x volume = constant	$pV = \text{constant}$

Paper 2 – Equations after the triple line are provided on the equation sheet.

P8	moment of a force = force x distance (normal to the direction of the force)	$M = F\ d$
P9	distance travelled = speed x time	$s = v\ t$
P9	acceleration = change in velocity / time taken	$a = \Delta v / t$
P10	weight = mass x gravitational field strength	$W = m\ g$
P10	force applied to a spring = spring constant x extension	$F = k\ e$
P10	resultant force = mass x acceleration	$F = m\ a$
P10 **H**	momentum = mass x velocity	$p = m\ v$
P11	pressure = force normal to the surface / area of that surface	$p = F/A$
P13	wave speed = frequency x wavelength	$v = f\ \lambda$
P9	(final velocity)^2 – (initial velocity)^2 = 2 x acceleration x distance	$v^2 - u^2 = 2\ a\ s$
P10 **H**	force = change in momentum / time taken	$F = m\ \Delta v / \Delta t$
P11 **H**	pressure due to a column of liquid = height of column x density of liquid x gravitational field strength (g)	$p = h\ \rho\ g$
P12	period = 1 / frequency	$T = 1 / f$
P14	magnification = image height / object height	$m = i / o$
P15 **H**	force on a conductor (at right angles to a magnetic field) carrying a current = magnetic flux density x current x length	$F = B\ I\ l$
P15 **H**	potential difference across primary coil / potential difference across secondary coil = number of turns in primary coil / number of turns in secondary coil	$V_p / V_s = n_p / n_s$
P15 **H**	potential difference across primary coil x current in primary coil = potential difference across secondary coil x current in secondary coil	$V_s\ I_s = V_p\ I_p$