

AQA GCSE Physics Paper 1 (P1 to P7) Equations

Recall may be required

1	P1	work done = force x distance (along the line of action of the force)	$W = F s$
2	P1	kinetic energy = $0.5 \times \text{mass} \times (\text{speed})^2$	$E_k = \frac{1}{2} m v^2$
3	P1	gravitational potential energy = mass x gravitational field strength (g) x height	$E_p = m g h$
4	P1	power = energy transferred / time	$P = E / t$
5	P1	power = work done / time	$P = W / t$
6	P1	efficiency = useful output energy transfer / total input energy transfer	$\text{Eff} = E_{\text{out}}/E_{\text{in}}$
7	P1	efficiency = useful power output / total power input	$\text{Eff} = P_{\text{out}}/P_{\text{in}}$
8	P4	charge flow = current x time	$Q = I t$
9	P4	potential difference = current x resistance	$V = I R$
10	P5	power = potential difference x current	$P = V I$
11	P5	power = (current) ² x resistance	$P = I^2 R$
12	P5	energy transferred = power x time (Same as equation 4)	$E = P t$
13	P5	energy transferred = charge flow x potential difference	$E = Q V$
14	P6	density = mass / volume	$\rho = m / V$

Given on equation sheet

15	P1	elastic potential energy = $0.5 \times \text{spring constant} \times (\text{extension})^2$	$E_e = \frac{1}{2} k e^2$
16	P2 P6	change in thermal energy = mass x specific heat capacity x temperature change	$\Delta E = m c \Delta \theta$
17	P6	thermal energy for a change of state = mass x specific latent heat	$E = m L$
18	P6	For gases: pressure x volume = constant	$pV = \text{constant}$

Standard Symbols and Units

1	time, t	second, s
2	distance, s height, h extension, e	metre, m
3	mass, m	kilogram, kg
4	volume, V	metre cubed, m ³
5	speed, v	meter per second, m/s
6	work, W energy, E	joule, J (or kilowatt hour, kWh)
7	power, P	watts, W
8	force, F	newton, N
9	density, ρ	kilogram per metre cubed, kg/m ³
10	pressure, p	pascal, Pa (N/m ²)
11	gravitational field strength, g	newton per kilogram, N/kg
12	charge, Q	coulomb, C
13	current, I	ampere or amp, A
14	potential difference, V	volt, V
15	resistance, R	ohm, Ω
16	temperature, θ	degree Celsius, °C
17	specific latent heat, L	joule per kilogram, J/kg
18	specific heat capacity, c	joule per kilogram per degree Celsius, J/(kg°C)
19	spring constant, k	newton per metre, N/m

nano, n	micro, μ	milli, m	centi, c	kilo, k	mega, M	giga, G
10^{-9}	10^{-6}	10^{-3}	10^{-2}	10^3	10^6	10^9