Equations To Revise and Remember

(They will *NOT* be given in the exam paper)

Word Equation	Symbol Equation
distance travelled = average speed × time	
acceleration = change in velocity ÷ time taken	$a = \frac{(v-u)}{t}$
force = mass × acceleration	$F = m \times a$
weight = mass × gravitational field strength	$W = m \times g$
momentum = mass × velocity	$\boldsymbol{p = m \times v}$
change in gravitational potential energy = mass × gravitational field strength × change in vertical height	$\Delta GPE = m \times g \times \Delta h$
kinetic energy = ½ × mass × (speed)^2	$KE = \frac{1}{2} \times m \times v^2$
efficiency= (useful energy transferred by the device) / (total energy supplied to the device)	
wave speed = frequency × wavelength	$v = f \times \lambda$
wave speed = distance ÷ time	$v = \frac{x}{t}$
work done = force × distance moved in the direction of the force	$E = F \times d$
power = work done ÷ time taken	$P = \frac{E}{t}$
energy transferred = charge moved × potential difference	$E = Q \times V$
charge = current × time	$Q = I \times t$
potential difference = current × resistance	$V = I \times R$
power = energy transferred (joule, J) ÷ time taken	$P = \frac{E}{t}$
electrical power = current × potential difference	$P = I \times V$
electrical power = (current)^2 × resistance	$P = I^2 \times R$
Density = mass ÷ volume	$p = \frac{m}{V}$
force exerted on a spring = spring constant × extension	$F = k \times x$

Equations in **Bold** are only for the Higher Tier Paper

Equations To Revise

(They will be on a Formula List in the Exam)

Word Equation	Symbol Equation
(final velocity)^2 – (initial velocity)^2 = 2 × acceleration × distance	$v^2 - u^2 + 2 \times a \times x$
force = change in momentum ÷ time	**$F = \frac{(mv - mu)}{t}$**
energy transferred = current × potential difference × time	$E = I \times V \times t$
force on a conductor at right angles to a magnetic field carrying a current = magnetic flux density × current × length	$\boldsymbol{F = B \times I \times l}$
For transformers with 100% efficiency, potential difference across primary coil × current in primary coil = potential difference across secondary coil × current in secondary coil	$V_P \times I_P = V_S \times I_S$
change in thermal energy = mass × specific heat capacity × change in temperature	$\Delta Q = m \times c \times \Delta\theta$
thermal energy for a change of state = mass × specific latent heat	$Q = m \times L$
energy transferred in stretching = 0.5 × spring constant × (extension)^2	$E = \frac{1}{2} \times k \times x^2$

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