

Physics Equations Triple Science

Motion Equations

Speed = Distance \div Time (Velocity = Distance \div Time)	$s = d \div t$ $(v = d \div t)$
Acceleration = Change in Speed \div Time	$a = (\text{Final Speed} - \text{Initial Speed}) \div t$ $a = (v - u) \div t$
(Higher only) Momentum = Mass \times Velocity	$P = m \times v$

Force & Work Equations

Force = Mass \times Acceleration	$F = m \times a$
Work done = Force \times Distance	$W = F \times d$
Power = Work \div Time	$P = W \div t$
Weight = Mass \times Gravity	$W = m \times g$
Density = Mass \div Volume	$\rho = m \div V$
Force on a Spring = Spring Constant \times Extension	$F = k \times X$
Moment of a Force = Force \times distance	
Pressure = Force \div Area	$P = F \div A$

Energy Equations

Kinetic Energy = $\frac{1}{2} \times \text{Mass} \times \text{Velocity} \times \text{Velocity}$	$KE = \frac{1}{2} \times m \times v^2$
Gravitational Potential Energy = $\text{Mass} \times \text{Gravity} \times \text{Height}$	$GPE = m \times g \times h$
Efficiency = $\text{Useful Energy out} \div \text{Total Energy in}$	

Wave Equations

Wave Speed = $\text{Wavelength} \times \text{Frequency}$	$s = \lambda \times f$
Wave Speed = $\text{Distance} \div \text{Time}$	$v = d \div t$

Electricity Equations

Energy = $\text{Charge} \times \text{Voltage}$	$E = Q \times V$
Charge = $\text{Current} \times \text{Time}$	$Q = I \times t$
Voltage = $\text{Current} \times \text{Resistance}$	$V = I \times R$
Power = $\text{Energy} \div \text{Time}$	$P = E \div t$
Power = $\text{Current} \times \text{Voltage}$	$P = I \times V$
Power = $(\text{Current})^2 \times \text{Resistance}$	$P = I^2 \times R$

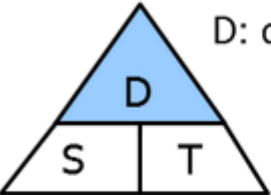
Units

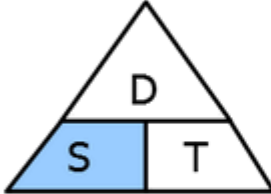
Distance = Metres (m) Time = Seconds (s) Speed (Velocity) = Metres per Second (m/s) Acceleration = Metres per Second Squared (m/s ²) Force = Newtons (N) Mass = Kilograms (kg) Work = Joules Energy = Joules Gravity = Newtons per kilogram (N/kg) Pressure = Newtons per metre squared (N/m ²) or Pascals (Pa)	Momentum = Kilograms metres per second (kgm/s) Volume = Metres cubed (m ³) Power = Watts (W) Charge = Coulombs (C) Current = Amps (A) Voltage = Volts (V) Resistance = Ohms (Ω) Wavelength = Metres (m) Frequency = Hertz (Hz) Moment = Newton metres (Nm)
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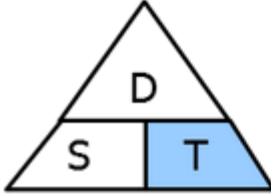
On Earth, gravity = 10N/kg

Rearranging Equations

D: distance, S: speed, T: time

 Distance = Speed X Time

 Speed = $\frac{\text{Distance}}{\text{Time}}$

 Time = $\frac{\text{Distance}}{\text{Speed}}$