

	Combined Foundation Formula (<u>Underline means given in the paper</u>)
Biology Paper 1	Magnification = size of image / size of object
	Volume of cube = length x length x length
	Surface area = 6 x length x length
	Ratio = Surface area / volume
	Percentage change = (change / original) x 100%
	Heart rate = number of beats / number of minutes
Biology Paper 2	Breathing rate = number of breaths / number of minutes
Biology Paper 2	Probably = number of desired outcomes / total possible outcomes
Chemistry Paper 1	Atomic number = Number of protons (also number of electrons in an atom)
	Mass Number = Number of protons + number of neutrons
	Group number = number of electrons in last shell
	Period number = number of electron shells
	Overall charge = number of protons – number of electrons
	$\text{Relative atomic mass} = \frac{(mass_1 \times abundance_1) + (mass_2 \times abundance_2) + \dots}{\text{Total abundance}}$
Chemistry Paper 1	Relative formula mass (molar mass) = sum of relative atomic mass of all atoms in chemical formula
Chemistry Paper 1	Conservation of Mass: Total mass of reactants before reaction = Total mass of products after reaction
Chemistry Paper 1	Concentration = mass / volume
Chemistry Paper 2	Rate of reaction = amount of reactant used or amount of product formed / time taken
	General formula for alkanes: C_nH_{2n+2} , where n is the number of carbon atoms
Physics Paper 1	Kinetic energy = $0.5 \times \text{mass} \times \text{velocity}^2$
	Elastic potential energy = $0.5 \times \text{spring constant} \times \text{extension}^2$
	Gravitational potential energy = mass x gravitational field strength x height
	Thermal Energy = mass x specific heat capacity x temperature change
	Energy for change in state = mass x specific latent heat
	Charge (coulomb) = current (ampere) x time (second)
	Voltage = current x resistance
	Electrical Power = Voltage x Current
	Electrical Power = $\text{Current}^2 \times \text{Resistance}$
	Electrical energy transferred = Voltage x Charge
	Electrical energy transferred = Electrical Power x time
Physics Paper 1	Density = Mass / Volume
Physics Paper 2	Weight = Mass x Gravitational Field Strength
	Work Done = Force x Distance
	Force = Spring Constant x Extension
	Work Done in stretching/ compressing spring = Elastic potential energy = $0.5 \times \text{spring constant} \times \text{Extension}^2$
	Distance = Velocity x Time
	Acceleration = Change in Velocity / Time = (Final velocity – Initial Velocity) / Time
	<u>Final Velocity² – Initial Velocity² = 2 x Acceleration x Distance</u>
	For a distance-time graph, the gradient = speed Gradient = Change in y / Change in x
	For a velocity-time graph, the gradient = acceleration and area underneath the line is distance Gradient = Change in Y / Change in X
	Area of Rectangle = Width x Height
	Area of Triangle = $0.5 \times \text{width} \times \text{Height}$
	Force = Mass x Acceleration
	Wave speed = Frequency x Wavelength
	<u>Time Period = 1 / Frequency</u>