



Formulae

Unit 2

Waves	
Wave speed	$v = f\lambda$
Refractive index	${}_1\mu_2 = \frac{\sin i}{\sin r} = \frac{v_1}{v_2}$
Electricity	
Potential difference	$V = W/Q$
Resistance	$R = V/I$
Electrical power, energy and efficiency	$P = VI$ $P = I^2R$ $P = V^2/R$ $W = VIt$
	$\% \text{ efficiency} = \frac{\text{useful energy (or power) output}}{\text{total energy (or power) input}} \times 100\%$
Resistivity	$R = \rho l/A$
Current	$I = \Delta Q/\Delta t$ $I = nqvA$
Quantum physics	
Photon model	$E = hf$
Einstein's photoelectric equation	$hf = \phi + \frac{1}{2}mv_{\max}^2$