

Relationships required for Physics Higher (Revised)

$d = \bar{v}t$	$E_w = QV$	$V_{peak} = \sqrt{2}V_{rms}$
$s = \bar{v}t$	$E = mc^2$	$I_{peak} = \sqrt{2}I_{rms}$
$v = u + at$	$E = hf$	$Q = It$
$s = ut + \frac{1}{2}at^2$	$E_k = hf - hf_0$	$V = IR$
$v^2 = u^2 + 2as$	$E_2 - E_1 = hf$	$P = IV = I^2R = \frac{V^2}{R}$
$s = \frac{1}{2}(u + v)t$		
$W = mg$	$T = \frac{1}{f}$	$R_T = R_1 + R_2 + \dots$
$F = ma$	$v = f\lambda$	$\frac{1}{R_T} = \frac{1}{R_1} + \frac{1}{R_2} + \dots$
$E_w = Fd$	$d \sin \theta = m\lambda$	$E = V + Ir$
$E_p = mgh$	$n = \frac{\sin \theta_1}{\sin \theta_2}$	$V_1 = \left(\frac{R_1}{R_1 + R_2} \right) V_s$
$E_k = \frac{1}{2}mv^2$		
$P = \frac{E}{t}$	$\frac{\sin \theta_1}{\sin \theta_2} = \frac{\lambda_1}{\lambda_2} = \frac{v_1}{v_2}$	$\frac{V_1}{V_2} = \frac{R_1}{R_2}$
$p = mv$	$\sin \theta_c = \frac{1}{n}$	$C = \frac{Q}{V}$
$Ft = mv - mu$		
$F = G \frac{m_1 m_2}{r^2}$	$I = \frac{k}{d^2}$	$E = \frac{1}{2} QV = \frac{1}{2} CV^2 = \frac{1}{2} \frac{Q^2}{C}$
$t' = \frac{t}{\sqrt{1 - \left(\frac{v}{c}\right)^2}}$	$I = \frac{P}{A}$	path difference = $m\lambda$ or $\left(m + \frac{1}{2}\right)\lambda$ where $m = 0, 1, 2 \dots$
$l' = l \sqrt{1 - \left(\frac{v}{c}\right)^2}$		
$f_o = f_s \left(\frac{v}{v \pm v_s} \right)$		random uncertainty = $\frac{\text{max. value} - \text{min. value}}{\text{number of values}}$
$z = \frac{\lambda_{observed} - \lambda_{rest}}{\lambda_{rest}}$		
$z = \frac{v}{c}$		
$v = H_0 d$		

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