Equation Sheet

GCSE (9–1) Combined Science A
(Gateway Science)
Physics
J250/05, J250/06, J250/11, J250/12

The information in this sheet is for the use of candidates following GCSE (9–1) Combined Science A (J250/05, J250/06, J250/11, J250/12).

A copy of this sheet will be provided as an insert within the question paper for each component.

Copies of this sheet may be used for teaching.

Equations in physics

change in thermal energy = mass × specific heat capacity × change in temperature	$\Delta E = m\,c\,\Delta\theta$
thermal energy for a change of state = mass × specific latent heat	$E = m\,l$
(final velocity)^2 - (initial velocity)^2 = 2 × acceleration × distance	$v^2 - u^2 = 2\,a\,s$
energy transferred in stretching = $\dfrac{1}{2}$ × spring constant × (extension)^2	$E = \dfrac{1}{2}\,k\,x^2$
potential difference across primary coil × current in primary coil = potential difference across secondary coil × current in secondary coil	$V_p\,I_p = V_s\,I_s$

Higher tier only

force on a conductor (at right angles to a magnetic field) carrying a current: force = magnetic flux density × current × length	$F = B\,I\,l$

Summary of updates

Date	Version	Details
May 2022	2.0	Data Sheet changed to Equation Sheet. Removed unnecessary wording in PM4.2i. Equations are presented in a table with the symbol equations. 0.5 is now represented as $\frac{1}{2}$
May 2023	2.1	Watermark removed