

These additional equations may be required in International GCSE Physics papers 2P and 2PR.

1. Forces and Motion

momentum = mass × velocity

$$p = m \times v$$

force = $\frac{\text{change in momentum}}{\text{time taken}}$

$$F = \frac{(mv - mu)}{t}$$

moment = force × perpendicular distance from the pivot

5. Solids, liquids and gases

change in thermal energy = mass × specific heat capacity × change in temperature

$$\Delta Q = m \times c \times \Delta T$$

6. Magnetism and electromagnetism

relationship between input and output voltages for a transformer

$$\frac{\text{input (primary) voltage}}{\text{output (secondary) voltage}} = \frac{\text{primary turns}}{\text{secondary turns}}$$

input power = output power

$$V_p I_p = V_s I_s$$

for 100% efficiency

8. Astrophysics

$\frac{\text{change in wavelength}}{\text{reference wavelength}} = \frac{\text{velocity of a galaxy}}{\text{speed of light}}$

$$\frac{\lambda - \lambda_0}{\lambda_0} = \frac{\Delta \lambda}{\lambda_0} = \frac{v}{c}$$

END OF EQUATION LIST