

## Physics Equations Sheet

### GCSE Physics (8463)

|    |   |                                     |
|----|---|-------------------------------------|
| 1  | <b>pressure due to a column of liquid</b><br><b>= height of column × density of liquid × gravitational field strength (g)</b>   | $p = h \rho g$                      |
| 2  | (final velocity) <sup>2</sup> – (initial velocity) <sup>2</sup> = 2 × acceleration × distance   | $v^2 - u^2 = 2 a s$                 |
| 3  | <b>force = <math>\frac{\text{change in momentum}}{\text{time taken}}</math></b>   | $F = \frac{m \Delta v}{\Delta t}$   |
| 4  | elastic potential energy = 0.5 × spring constant × (extension) <sup>2</sup>   | $E_e = \frac{1}{2} k e^2$           |
| 5  | change in thermal energy = mass × specific heat capacity × temperature change   | $\Delta E = m c \Delta \theta$      |
| 6  | period = $\frac{1}{\text{frequency}}$   | $T = \frac{1}{f}$                   |
| 7  | magnification = $\frac{\text{image height}}{\text{object height}}$  |                                     |
| 8  | <b>force on a conductor (at right angles to a magnetic field) carrying a current</b><br><b>= magnetic flux density × current × length</b>   | $F = B I l$                         |
| 9  | thermal energy for a change of state = mass × specific latent heat  | $E = m L$                           |
| 10 | <b><math>\frac{\text{potential difference across primary coil}}{\text{potential difference across secondary coil}} = \frac{\text{number of turns in primary coil}}{\text{number of turns in secondary coil}}</math></b> | $\frac{V_p}{V_s} = \frac{n_p}{n_s}$ |
| 11 | <b>potential difference across primary coil × current in primary coil</b><br><b>= potential difference across secondary coil × current in secondary coil</b>  | $V_p I_p = V_s I_s$                 |
| 12 | For gases: pressure × volume = constant   | $p V = \text{constant}$             |

Higher Tier only equations are in **bold**.