**Physics equations**

These are NOT on the data sheet!

**Top tip: You need to be able to recall and apply the equations - don’t worry you will have plenty of practice!!!**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Unit** | **Equation number** | **Equation** | **Units ( You need to remember these too)** |  |
| **P5** | **1** | **W = mg** | **W = weight (N = Newtons)**  **m = mass (kg = kilograms)**  **g = gravitational field strength (N/kg)** | **I can use the equation** |
| **I can re –arrange the equation** |
| **I can use different units** |
| **P5** | **2** | **W = Fs** | **W = Work done (J = Joules)**  **F = Force (N)**  **s= distance (m = metres)** | **I can use the equation** |
| **I can re –arrange the equation** |
| **I can use different units** |
| **P5** | **3** | **F = ke** | **F = Force (N)**  **k = spring constant (N/m)**  **e= extension (m)** | **I can use the equation** |
| **I can re –arrange the equation** |
| **I can use different units** |
| **P5** | **4 (PHYS Only)** | **M= F d** | **F = Force (N)**  **M= Moment of a force (Nm)**  **d= distance (perpendicular to direction of force) (m)** | **I can use the equation** |
| **I can re –arrange the equation** |
| **I can use different units** |
| **P5** | **5 (PHYS Only)** |  | **P = Pressure (N/m2)**  **F = Force (N)**  **A= area (m2)** | **I can use the equation** |
| **I can re –arrange the equation** |
| **I can use different units** |
| **P5** | **6** | **s = vt** | **S = distance travelled (m)**  **v = speed (m/s)**  **t = Time (s = seconds)** | **I can use the equation** |
| **I can re –arrange the equation** |
| **I can use different units** |
| **P5** | **7** |  | **a = acceleration (m/s2)**  **Δ v = change in velocity (m/s)**  **t = Time (s)** | **I can use the equation** |
| **I can re –arrange the equation** |
| **I can use different units** |
| **P5** | **8** | **F= ma** | **F = Force ( N)**  **m = mass (kg)**  **a = acceleration (m/s2)** | **I can use the equation** |
| **I can re –arrange the equation** |
| **I can use different units** |
| **P5** | **9 HT** | **p = mv** | **m = mass (kg)**  **p= momentum (kgm/s)**  **v = velocity (m/s)** | **I can use the equation** |
| **I can re –arrange the equation** |
| **I can use different units** |
| **P1** | **10** | **Ek=½ mv2** | **Ek = Kinetic energy (J)**  **m = mass (kg)**  **v = velocity (m/s)** | **I can use the equation** |
| **I can re –arrange the equation** |
| **I can use different units** |
| **P1** | **11** | **Ep = mgh** | **Ep = Gravitational Potential energy (J)**  **m = mass (kg)**  **g = gravitational field strength (N/kg)**  **h = height (m)** | **I can use the equation** |
| **I can re –arrange the equation** |
| **I can use different units** |
| **P1** | **12** |  | **P = Power (W = Watts) so effectively 12 and 13 are the**  **E = Energy transferred (J) same because**  **t = Time (s) work done = Energy transferred** | **I can use the equation** |
| **I can re –arrange the equation** |
| **I can use different units** |
| **P1** | **13** |  | **P = Power (W)**  **W = Work done (J)**  **t = Time (s)** | **I can use the equation** |
| **I can re –arrange the equation** |
| **I can use different units** |
| **P1** | **14** | **Efficiency** | | **I can use the equation** |
| **I can re –arrange the equation** |
| **I can use different units** |
| **P1** | **15** | **Efficiency =**  **so effectively 14 and 15 are the same, use either energy or power** | | **I can use the equation** |
| **I can re –arrange the equation** |
| **I can use different units** |
| **P6** | **16** | **V = fλ** | **v = wave speed (m/s)**  **f = frequency (Hz = Hertz)**  **λ = wavelength (m)** | **I can use the equation** |
| **I can re –arrange the equation** |
| **I can use different units** |
| **P2** | **17** | **Q = I t** | **I = Current (A = Amps)**  **Q = Charge flow (C = Coulombs)**  **t = Time (s)** | **I can use the equation** |
| **I can re –arrange the equation** |
| **I can use different units** |
| **P2** | **18** | **V = I R** | **V = Potential difference (V = Volts)**  **I = Current (A)**  **R = Resistance (Ω = Ohms)** | **I can use the equation** |
| **I can re –arrange the equation** |
| **I can use different units** |
| **P2** | **19** | **P = I V** | **P = Power (W)**  **I = Current (A)**  **V = Potential difference (V)** | **I can use the equation** |
| **I can re –arrange the equation** |
| **I can use different units** |
| **P2** | **20** | **P = I2 R** | **P= Power (W)**  **I = Current (A)**  **R = Resistance (Ω)** | **I can use different units** |
| **I can re –arrange the equation** |
| **I can use different units** |
| **P2** | **21** | **E = P t** | **P= Power (W)**  **E= Energy transferred (J)**  **t = Time (s)** | **I can use the equation** |
| **I can re –arrange the equation** |
| **I can use different units** |
| **P2** | **22** | **E = V Q** | **E= Energy transferred (J)**  **V =Potential difference (V)**  **Q = Charge flow (C)** | **I can use the equation** |
| **I can re –arrange the equation** |
| **I can use different units** |
| **P3** | **23** |  | **= density (kg/m3)**  **m = mass (kg)**  **V= volume (m3)** | **I can use the equation** |
| **I can re –arrange the equation** |
| **I can use different units** |