SPH4U Formulas and Constants

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| **Kinematics** | **Dynamics** | **Energy and Momentum** | **Fields** | **Light** |  |
| *ac* = 4π2*rf* 2**Special Relativity** |  | *W* = *F*Δ*d* cos*θ**W* = Δ*E**Eg* = *mg*Δ*h* | Δ*E*E = – *qε*Δ*d**F*M = *qvB* sin *θ**F*on wire=*ILB*sin*θ* | |*PmS*1 – *PmS*2| = *m*λ*d* sin *θm* = *m*λ*I*out = *I*in cos2 *θ* *n*1 sin *θ*1 = *n*2 sin *θ*2 | G = 6.67 × 10 – 11 N⋅m2/kg2*k* = 8.99 × 109 Nm2/C2*e* = – 1.60 × 10– 19 C*me*=9.11 × 10–31 kg*mp*=1.67 × 10–27 kg*mEarth* = 5.98 ×1024 kg*rEarth* = 6.38 × 106 m*n*air = 1.0003*n*water = 1.33*c* = 3.0 × 108 m/s*Wavelength (nm)*Violet: 400 – 450Blue: 450 – 500Green: 500 – 570Yellow: 570 – 590Orange: 590 – 610Red: 610 – 750 |