

$$c = \lambda \nu$$

c = speed of light ($2.998 \times 10^8 \text{ m s}^{-1}$)
 λ = wavelength (meter, m) - lamda
 ν = niu (frequency) : Hz @ s^{-1}

1 picometer, pm = 10^{-12} m
 1 nanometer, nm = 10^{-9} m
 1 micrometer, $\mu\text{m} = 10^{-6} \text{ m}$
 1 angstroms, $\text{\AA} = 10^{-10} \text{ m}$
 1 Hz = s^{-1}

Converting Frequency, Wavelength and Wave-number

Problem-solving Example 1

A new laser light has a wavelength of 485 Angstroms. What is the frequency of this light?

$$\lambda = (485 \times 10^{-10}) \text{ m}$$

$$c = 2.998 \times 10^8 \text{ m s}^{-1}$$

$$\nu = ? \text{ Hz}$$

$$c = \lambda \nu \quad \text{or} \quad \nu = \frac{c}{\lambda} = \frac{2.998 \times 10^8 \text{ m s}^{-1}}{485 \times 10^{-10} \text{ m}} = 6.18 \times 10^{15} \text{ Hz}$$

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