

The wavelength range of the visible spectrum extends from violet (400 nm) to red (750 nm). Express these wavelengths to frequencies (Hz). (1nm = 10^{-9} m)

ANSWER

Frequency of violet light,

$$\nu = \frac{c}{\lambda}$$

$$= \frac{3.00 \times 10^8 \text{ms}^{-1}}{400 \times 10^{-9} \text{m}} = 7.50 \times 10^{14} \text{Hz}$$

Frequency of red light,

$$\nu = \frac{c}{\lambda}$$

$$= \frac{3.00 \times 10^8 \text{ms}^{-1}}{680 \times 10^{-9} \text{m}} = 4.41 \times 10^{14} \text{Hz}$$