

Answer on Question #51550 – Chemistry – Organic Chemistry

Question:

What is the frequency of light having a wavelength of 691 nm? What is the wavelength(in nm) of radiation having a frequency of 4.29×10^9 Hz?

Answer:

Frequency and wavelength are related by the following equation:

$$c = f \cdot \lambda$$

The frequency of the light is $f = c/\lambda$, where c – is the speed of light.

$$f = 3 \times 10^8 / 691 \times 10^{-9} = 4.342 \times 10^{14} = \mathbf{4.34 \times 10^{14} \text{ s}^{-1} = 4.34 \times 10^{14} \text{ Hz}}$$

$$\lambda = 3 \times 10^8 / 4.29 \times 10^9 = 0.0699 = \mathbf{69900000 \text{ nm}}$$

<https://www.AssignmentExpert.com>