PRACTICE PROBLEMS:

1. A certain photon of light has a wavelength of 710 nm. What is the frequency of this light?

Answer:

$$\frac{710\ nm}{}\ x\ \frac{1\ m}{1\ x\ 10^9\ nm} = 7.10\ x\ 10^{-7}\ m$$

$$C = \lambda v\ ;\ v = \frac{C}{\lambda}$$

$$v = \frac{3.00\ x\ 10^8\ \frac{m}{sec}}{7.10\ x\ 10^{-7}\ m} = \frac{3.00\ x\ 10^8\ m}{7.10\ x\ 10^{-7}\ m\ (sec)} = 4.23\ x\ 10^{14}\ \frac{1}{sec}$$

2. What is the wavelength of a quantum of light with a frequency of $3.45\ x\ 10^{16}$ Hz?

Answer:

$$C = \lambda v\ ;\ \lambda = \frac{C}{v}$$

$$\lambda = \frac{3.00\ x\ 10^8\ \frac{m}{sec}}{3.45\ x\ 10^{16}\ \frac{1}{sec}} = \frac{3.00\ x\ 10^8\ m\ (sec)}{3.45\ x\ 10^{16}\ (sec)} = 8.70\ x\ 10^{-9}\ m$$