Practice Problems: ***Wavelength, Frequency, Energy content of One Quantum of Light.***

Examples:

$c = \lambda\nu$

$E = h\nu$

$E = mc^2$

$c = 3.00 \times 10^8\ {}^{m}/_{sec}$

$h = 6.626 \times 10^{-34}\ J \bullet sec$

$Hz = {}^{1}/_{sec}$

I. A certain photon of light has a wavelength of 422 nm. **What is the frequency** of the light?

II. **What is the energy** of a quantum of light from part I.

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1. What is the energy of a quantum of light with a frequency of 7.39×10^{14} Hz?

2. What is the wavelength of the quantum of light in question 1?

3. A certain red light has a wavelength of 680 nm. What is the frequency of the light?

5. A certain blue light has a frequency of 6.91×10^{14} Hz. What is the wavelength of the light?

6. What is the energy of a quantum of light from question 5?

7. The energy for a quantum of light is 2.84×10^{-19} J. What is the wavelength of this light?