

HOMEWORK PROBLEMS:

1a. What is the frequency of a photon of light that has an energy of 3.68×10^{-33} Joules?

Answer:

$$E = h\nu ; \nu = \frac{E}{h}$$

$$\nu = \frac{3.68 \times 10^{-33} \text{ J}}{6.626 \times 10^{-34} \text{ J} \cdot \text{sec}} = 5.55 \times 10^{66} \frac{1}{\text{sec}}$$

1b. What is the energy of a photon of light that has a frequency of 2.44×10^{15} Hz?

Answer:

$$E = h\nu$$

$$E = (6.626 \times 10^{-34} \text{ J} \cdot \text{sec}) \left(2.44 \times 10^{15} \frac{1}{\text{sec}} \right) = \frac{(6.626 \times 10^{-34} \text{ J} \cdot \text{sec}) (2.44 \times 10^{15})}{(\text{sec})} =$$

$$E = 1.62 \times 10^{-18} \text{ J}$$