

Name: _____

Period: ____ Subject: _____

Date: _____

Wavelength, Frequency, and Energy

Be sure to use the appropriate significant figures, and make sure you *include units!*

$$h = 6.626 \times 10^{-34} \text{ J}\cdot\text{s}$$

1. What is the wavelength of electromagnetic radiation with a frequency of 6.00×10^9 Hz?
2. What is the frequency of the light from a laser that emits light of wavelength 840 nm?
3. Your favorite radio station broadcasts at 105.9 MHz. What is the wavelength of this radio signal?
4. You get an x-ray with a wavelength of 6.0×10^{-10} m. What is the frequency of this x-ray?
5. What is the speed of an ultraviolet ray of wavelength 2.25 nm with a frequency of 1.33×10^{17} Hz?

6. How much energy does a photon of EM radiation with a frequency of 5.0×10^{12} Hz have?

7. In your flame test experiment, one of the chemicals emitted light of wavelength 720 nm. What is the frequency of this light?

8. How much energy does a photon of light emitted in problem #7 have?

9. What is the energy of a photon of ultraviolet light with a wavelength of 1.18×10^{-8} m?

10. What is the frequency of a photon of EM radiation that has an energy of 8.75×10^{-25} J?