KEY 2016 extra practice

Electromagnetic Spectrum Worksheet #1

1. In each of the following pairs, circle the form of radiation with the LONGER WAVELENGTH:

   a. red light **or** blue light
   b. microwaves **or** radiowaves
   c. infrared radiation **or** red light
   d. gamma rays **or** UV radiation

2. In each of the following pairs, circle the form of radiation with the GREATER FREQUENCY:

   a. yellow light **or** green light
   b. x-rays **or** gamma rays
   c. UV radiation **or** violet light
   d. AM radio waves **or** FM radio waves

3. In each of the following pairs, circle the form of radiation with the LOWER ENERGY:

   a. red light **or** blue light
   b. microwaves **or** radiowaves
   c. infrared radiation **or** red light
   d. gamma rays **or** UV radiation
   e. yellow light **or** green light
   f. x-rays **or** gamma rays
   g. UV radiation **or** violet light
   h. AM radio waves **or** FM radio waves

4. Springfield's "Classic Rock" radio station broadcasts at a frequency of 102.1 MHz. What is the length of the radio wave **in meters**?

$$c = f\lambda \qquad \lambda = c / f$$

$\lambda = (3.0 \times 10^8 m/s) / (102.1 \times 10^6 Hz)$
$\lambda = 2.938m$

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5. A beam of light has a wavelength of 506 nanometers. What is the frequency of the light? What color is the light?

$$c = f\lambda \qquad f = c / \lambda$$

$f = (3.0 \times 10^{8} m/s) / (506 \times 1010^{-9})$
$f = 5.9289 \times 10^{14}$ Hz

6. Blue light has a frequency of 6.98×10^{14} Hertz. Calculate the wavelength of blue light **in nanometers.**

$$c = f\lambda \qquad \lambda = c / f$$

$\lambda = (3.0 \times 10^{8} m/s) / (6.98 \times 10^{14} Hz)$
$\lambda = 4.29799 \times 10^{-7} m = 429.799$ nm