Problems: Wavelength, Frequency, and Energy

Name:_____

1. a) What is the wavelength(λ) of light emitted when an electron moves from the n=5 to the n=2 energy level in hydrogen?

   b) Can we see this light? If so what color is it?

$$1/\lambda = R(1/n_1^2 - 1/n_2^2)$$

R (Rydberg Constant) = $1.097 \times 10^7\ m^{-1}$

2. What is the frequency(f) of the light in #1?

$$f = c/\lambda$$

c (speed of light) = 3.00×10^8 m/sec

3. What is the energy(E) of the waves in #1?

$$E = hf$$

h (Planck's Constant)= 6.626×10^{-34} Jsec