You must show all equations, all rearrangements of equations, and all work to receive any credit

1. Cell phones use electromagnetic radiation with frequencies in the range of 824 to 849 megahertz. For a frequency of 827 megahertz,

    a. Calculate the wavelength, in units of nm, of the electromagnetic radiation associated with this cell phone frequency.

    b. Calculate the total energy, in units of Joules, contained in 1.00 moles of photons of electromagnetic radiation at this frequency.

2. For a newly discovered star, it was found that the maximum intensity of light being emitted occurs at a wavelength of 632 nm. What is the temperature of the star?

3. A 1000 kg car traveling at a velocity of 55.0 mph has what kinetic energy in Joules?

4. Perform the following metric system conversions using dimensional analysis and two conversion factors.

    a. 0.123 pg to Gg

    b. 0.005485 dL to nL

    c. 4.2 cm^3 to km^3

    d. 2.4 ft^2 to cm^2