Name: Date: Period:

Light #1

speed of light: 3.0×10^8 m/s	speed of sound in air: 340 m/s

1. What is the frequency of indigo light with a wavelength of 4.49×10^{-7} m?

2. What is the wavelength of red light with a frequency of 4.3×10^{14} Hz?

3. The radio station 95.5 WFMS broadcasts at a frequency of 95.5×10^6 Hz. What is the wavelength of its wave?

4. What is the wavelength of a 500 Hz **sound** wave?

5. A certain galaxy glows with a frequency of 4.991×10^{14} Hz (orange). When you observe the galaxy from a telescope, the color of light you see has a frequency of 4.989×10^{14} Hz (slightly redder).
   (a) Assume the earth is approximately stationary. Is the galaxy moving toward the earth or away from the earth?

   (b) *B*onus! How fast is the galaxy moving? (Solve on the back!)