

Name:

Date:

Period:

Light #1

speed of light: 3.0×10^8 m/s	speed of sound in air: 343 m/s
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1. What is the wavelength of red light with a frequency of 4.3×10^{14} Hz?
2. What is the frequency of indigo light with a wavelength of 4.49×10^{-7} m?
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) *Bonus!* How fast is the galaxy moving? (Solve on the back!)