

Physics 1311  
Spring 2020  
Homework/Study 3 (two-sided)

Chapter 2

1. Given that sound propagates at 1400 feet per second, calculate the wavelength of a 400 Hz sound. Show calculations for credit.
  
2. What property makes infrared radiation different from radio?
  
3. How does the speed of a radio wave through space compare to that of light? (Think carefully about this)
  
4. Using Wien's Law, find the wavelength of peak output for a star of 9,000 K temperature. (See p. 54. Instead of .29 use 2,900,000. The result will be in nm.) Show calculations for credit.
  
5. If you see that the spectrum of light coming from some object is a nice clean set of bright lines, what do you then know about the object?
  
6. What is the simple physical cause of Doppler effect?
  
7. Suppose we observe the spectrum of some object and find the red 656.3 nm line of hydrogen. We find it at an observed wavelength of 655.4 nm. How fast is the object moving and which way (toward or away from us)? No credit without showing calculations.

