1. Suppose you have a pipe producing standing sound waves. Two adjacent harmonics of standing waves (i.e., no standing waves in between these) have wavelengths 2.000 meters and 1.500 meters.

   (a) Which wavelength corresponds to a higher mode?
   (b) Is this pipe open-open or open-closed? Explain. Either Eq. (17.17) or (17.18) is useful – figure out which one applies to the data.
   (c) What is the fundamental wavelength? What is the length of the pipe?

2. Watch this video from our best friends over at UCLA:

   [https://www.youtube.com/watch?v=IQ1q8XvOW6g](https://www.youtube.com/watch?v=IQ1q8XvOW6g)

   Note the two tuning forks playing from 0:39–0:42 in the video (39 seconds to 42 seconds into the video). Assuming one of the tuning forks is 288 Hz, what is the frequency of the other one?

   Optional: if you have time, I’d recommend watching [this video](https://www.youtube.com/watch?v=dihQuwrf9yQ)* for a good summary of resonance, and (at about 6min) for a cool demo called “Rubens’ Tube” (or “Standing Wave Flame Tube”). Unfortunately, we don’t have this demo in the physics lab here at UCSD! (I believe we used to, before it was deemed unsafe.)

*Link, in case you printed this out: [https://www.youtube.com/watch?v=dihQuwrf9yQ](https://www.youtube.com/watch?v=dihQuwrf9yQ)

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[not due; for extra practice]. All problems from Chapter 17 of the 4th edition of Knight:

   Conceptual Questions: 3-5, 7, 10.
   
   Exercises: 14, 15, 17, 20, 33, 35.