

Challenge Exercises for Further Study

- B-1:** As a train approaches a ringing crossing gate, Stacey, a passenger on the train, hears a frequency of 440 Hz from the bell. As the train recedes, she hears a frequency of 410 Hz. How fast is the train traveling?
- B-2:** Richard stands on the flatbed car of a moving train playing an A on his horn. The note has a fundamental frequency of 220 Hz. Calculate whether or not the train could move fast enough for a stationary observer on the ground to hear the first overtone of the horn as the train passes.