PHYS 2303 Homework 4

Fletcher Gornick

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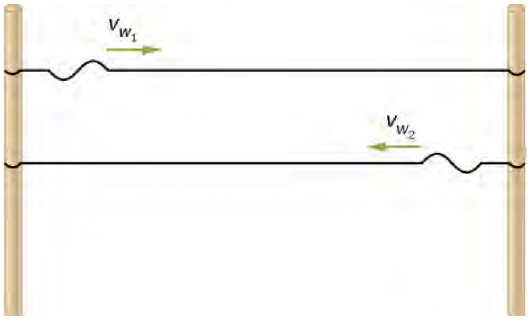
Chapter 16 Problem 69

Two strings are attached between two poles separated by a distance of 2.00 m as shown below, both under the same tension of 600.00 N. String 1 has a linear density of $\mu_1 = 0.0025$ kg/m and string 2 has a linear mass density of $\mu_2 = 0.0035$ kg/m. Transverse wave pulses are generated simultaneously at opposite ends of the strings. How much time passes before the pulses pass one another?

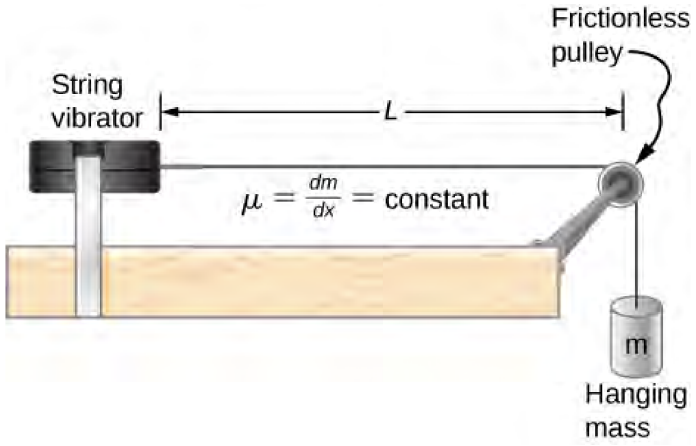


Chapter 16 Problem 104

Consider the experimental setup shown below. The length of the string between the string vibrator and the pulley is $L = 1.00$ m. The linear density of the string is $\mu = 0.006$ kg/m. The string vibrator can oscillate at any frequency. The hanging mass is 2.00 kg.

(a) What are the wavelength and frequency of $n = 6$ mode?

(b) The string oscillates the air around the string. What is the wavelength of the sound if the speed of the sound is $v_s = 343.00$ m/s?



Chapter 16 Problem 146

A string with a linear mass density of $\mu = 0.0085$ kg/m is fixed at both ends. A 5.0-kg mass is hung from the string, as shown below. If a pulse is sent along section A, what is the wave speed in section A and the wave speed in section B?