

PHYS 2303 Homework 5

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Volume 1 Chapter 17 Problem 105

A string with a linear mass density of $\mu = 0.0062 \text{ kg/m}$ is stretched between two posts 1.30 m apart. The tension in the string is 150.00 N. The string oscillates and produces a sound wave. A 1024-Hz tuning fork is struck and the beat frequency between the two sources is 52.83 Hz. What are the possible frequency and wavelength of the wave on the string?

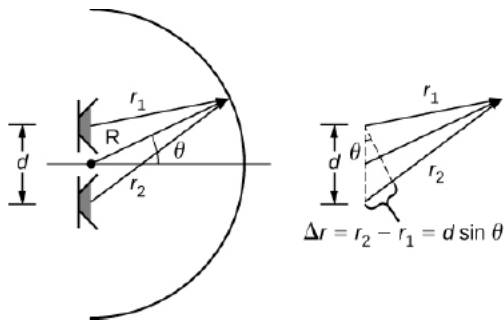
Volume 1 Chapter 17 Problem 117

Two eagles fly directly toward one another, the first at 15.0 m/s and the second at 20.0 m/s . Both screech, the first one emitting a frequency of 3200 Hz and the second one emitting a frequency of 3800 Hz . What frequencies do they receive if the speed of sound is 330 m/s ?

Volume 1 Chapter 17 Problem 141

Two speakers producing the same frequency of sound are a distance of d apart. Consider an arc along a circle of radius R , centered at the midpoint of the speakers, as shown below.

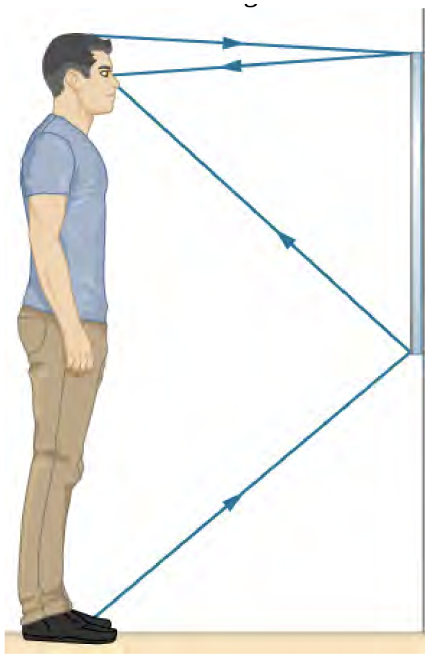
(a) At what angles will there be maxima?



(b) At what angle will there be minima? 10.25

Volume 3 Chapter 1 Problem 34

Suppose a man stands in front of a mirror as shown below. His eyes are 1.65 m above the floor and the top of his head is 0.13 m higher. Find the height above the floor of the top and bottom of the smallest mirror in which he can see both the top of his head and his feet. How is this distance related to the man's height?



Volume 3 Chapter 1 Problem 44

A scuba diver training in a pool looks at his instructor as shown below. What angle does the ray from the instructor's face make with the perpendicular to the water at the point where the ray enters? The angle between the ray in the water and the perpendicular to the water is 25.0° .

