Physics 158 Waves and Interference Homework

Thoughts on Problems

1. In-depth double slit experiment problem (hard)
2. interference problem (one easy, one hard)
3. Beats problem? (easy)
4. Standing wave problem
5. Thin film (easy)

Problem 1

Difficulty: 2/5
Topics: interference, phase shift
A speaker sits locked at the center of a spherical room. Another speaker of the same frequency but out of phase by $\frac{\pi}{3}$ can be moved around. What locations could you move this other speaker so that constructive interference is heard at the centre of the room?

Problem 2

Difficulty: 2/5
Topics: interference
Source: Phys 158 Tutorial 2 A sound wave of 40.0 cm wavelength enters a tube as shown. What is the smallest radius, r, such that a minimum is heard by the detector?

Problem 3