More Interference Problems (at long last).

1. Two speakers are facing one another separated by 9.00m. The speakers are coherent and produce 875Hz sound. At how many places between the two speakers will an observer detect destructive interference?

2. Two radio transmitters are separated by 1.20km and broadcast the same frequency, in phase with one another. An observer at point A receives a maximum strength signal. The observer notices that the signal continuously decreases until reaching zero at point B. What is the frequency of the waves?

 B

 600.0m

 136m

 A

 989m

3. Sound with a frequency of 12000Hz passes through two openings separated by 42.0cm. Find the angle at which the first destructive interference travels away from the openings.

4. The two speakers below are in phase at 130Hz.

10.20m

A. Locate, along the dotted line, the first two positions, as measured moving to the right from the top speaker, where an observer would notice a. constructive interference

 b. destructive interference

B. Locate, along the dotted line, the final two positions, as measured moving to the right from the top speaker, where an observer would notice a. constructive interference

 b. destructive interference

 1 2

5.

 A B

 C

Describe the interference at A, B, C. Complete the diagram and draw a point of destructive interference that occurs because d1-d2=2.5λ.