2 Source Interference of Waves

1. Two speakers are in phase and produce a sound of 480Hz. What are the three shortest distances that speaker A can be moved so that the sound at point A is minimized?

A A

B

2. Two speakers are in phase and produce a 512Hz tone. The speakers are arranged as shown below. Is the interference at point A constructive or destructive? Explain.

4.0m

A

3.0m

3. The two speakers below are in phase and produce a constant 100.0Hz tone. At point P in the diagram the sound interferes destructively.

P

D

d

a. If D is 6.0m, what is the minimum distance d?

b. If D is 9.0m, what is the minimum distance d?

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

5. Two radio towers are emitting EM signals of 820kHz, in phase with one another. An observer walks from far away along the line shown. At point P, 1.00km from the top tower, the first weak (near zero) signal is detected.

a. Find Ymin.

b. How far, X, would the first strong signal be found?

**X**



P



**Y**