

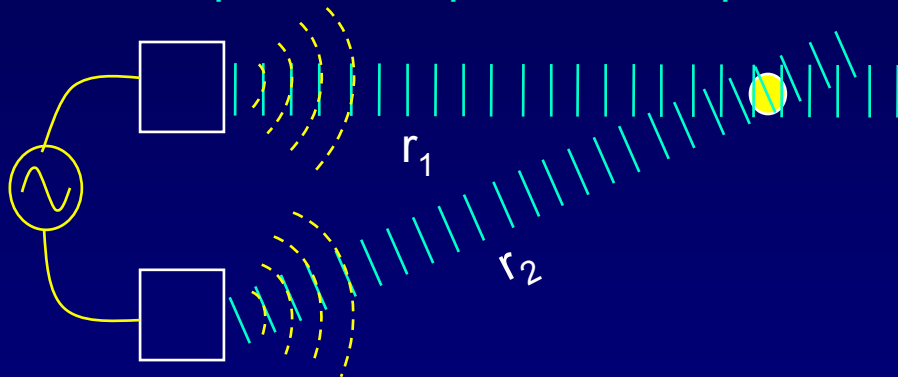
Example: Path-Length Dependent Phase

Each speaker alone produces intensity $I_1 = 1\text{W/m}^2$ at the listener, and $f = 300\text{ Hz}$.



Sound velocity: $v = 330\text{ m/s}$

Drive speakers in phase. Compute the intensity I at the listener in this case:



Procedure:

- 1) Compute path-length difference: $\delta =$
- 2) Compute wavelength: $\lambda =$
- 3) Compute phase difference: $\phi =$
- 4) Write formula for resultant amplitude: $A =$
- 5) Compute the resultant intensity: $I = A^2 =$