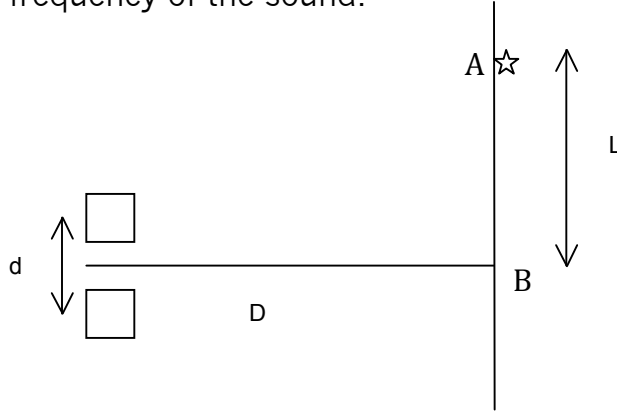
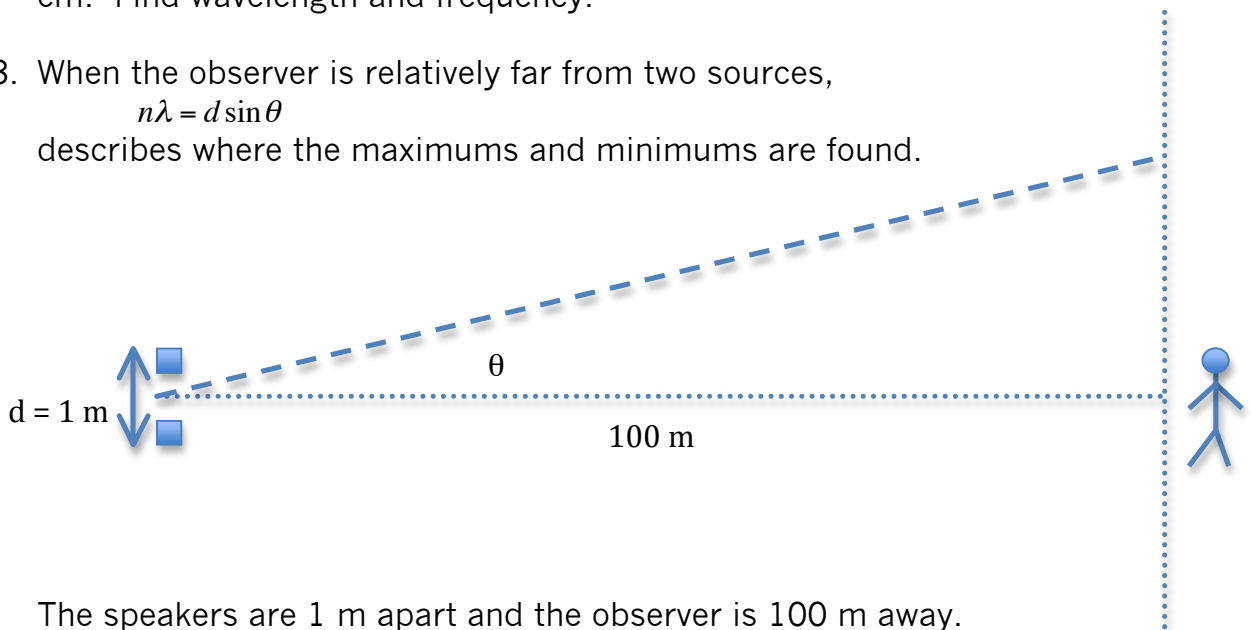


Double Slit Interference
Assume speed of sound is 340 m/s

1. Two speakers are producing a sound of constant frequency and are separated by $d = 50$ cm. A student is walking along the dotted line from B to A. She hears a max at B then the sound fades as she hears a minimum at A. If the distance, L , is 120 cm and $D = 200$ cm, find the wavelength and frequency of the sound.



2. Repeat #1 but there is a *max* at A, $L = 100$ cm, $D = 300$ cm and $d = 50$ cm. Find wavelength and frequency.
3. When the observer is relatively far from two sources,
 $n\lambda = d \sin \theta$
describes where the maximums and minimums are found.



The speakers are 1 m apart and the observer is 100 m away.

- a. $\lambda = 20$ cm. Find the angle where the observer will hear
- | | |
|--------------------------|-------------------------|
| i. 1 st max | iv. 4 th max |
| ii. 2 nd max | v. 5 th max |
| iii. 3 rd max | vi. 6 th max |
- b. How far must he walk from the central max to the first max?
- c. Now the wavelength changes and the observer walks 120 m from the central max to the third max. Find the wavelength and frequency.