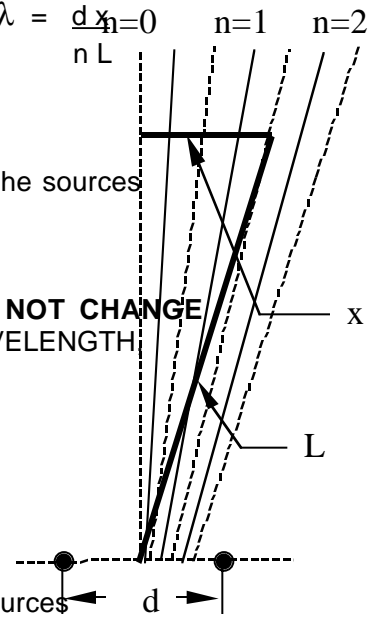


PURPOSE: To compare a wavelength calculated from the relationship $\lambda = \frac{d x}{n L}$ with the same wavelength obtained by actual measurement.

PROCEDURE NOTES:

- choose point on "BRIGHT" line fairly far out on the line, not close to the sources
- use 1 hole separation for d ...not too far apart...10 cm maximum
- run three trials...one on each of three different bright lines...but **DO NOT CHANGE MOTOR SPEED** (changing motor speed will change frequency and WAVELENGTH; and you want the wavelength to stay constant for all three trials...)
- calculated wavelength obtained from this relation ---> $\lambda = \frac{d x}{n L}$

d = separation of sources (distance between sources)
 x = distance from center line to point on bright line
 n = number of bright line
 L = distance from point on bright line to midpoint of line joining sources



- measured wavelength obtained by using barrier to set up standing wave, which can then be easily measured (remember that one segment of a standing wave is only 1/2 wavelength)... one trial OK... use as average

DATA:

record values for all measurements and calculations to nearest 0.1 cm

d (cm)	x (cm)	n	L (cm)	λ (calculated) (cm)	λ (measured) (cm)
					////////// /
					////////// /
					////////// /
////////// /	////////// /	////////// /	average		

CALCULATIONS:

1. Show a 4-part sample calculation for ONE of the wavelength calculations...DON'T FORGET UNITS...express answer to nearest 0.1 cm

2. Show a sample calculation for % Difference, using the average values for calculated and measured wavelength

CONCLUSION / QUESTIONS (USE COMPLETE SENTENCES):

1. Cite values for average calculated and measured wavelengths, and % Difference.

2. Briefly explain how this lab relates to the subsequent lab in which we will measure the wavelength of red light.