Name _____ **Date** _____
Teacher _____ **Period** _____

Physics - "Diffraction of Light" Notes

What is Diffraction?

_____
_____

What proof do we have that light diffracts?

_____
_____

Single Slit Diffraction

- Creates light and dark bands
- Dark bands are a result of _____
- Light bands are a result of _____
- There is a _____ relationship between the distance between the bands of light and the wavelength of the light.
- Larger wavelength = _____ bands

Diffraction Gratings

What are they?

_____
_____

What advantage do they have?

_____
_____

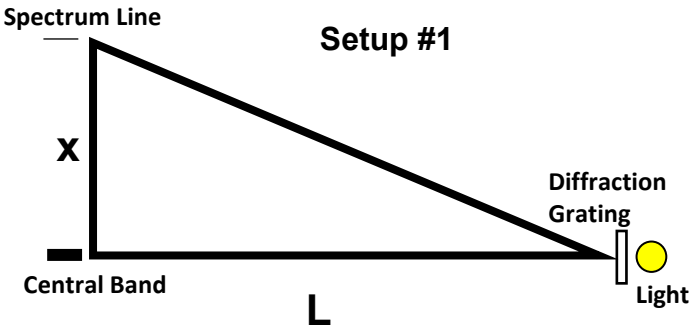
Multi-Slit Interference

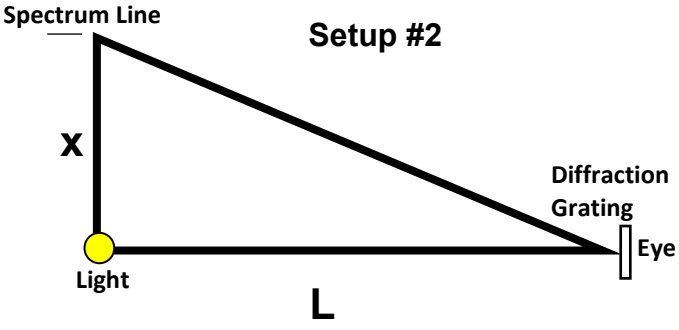
- The _____ the wavelength, the _____ the amount of diffraction.
- _____ diffracts the least, _____ diffracts the most.

Finding the wavelength

- **d** _____
  _____
  _____
- **x** _____
  _____
  _____
- **L** _____
  _____
  _____

$$\lambda = \frac{dx}{L}$$





Example 1

An experiment is performed to measure the wavelength of red light coming from a lamp. The slits in the diffraction grating are 1.9×10^{-3} cm apart. A screen is placed 0.600 m away and the separation between the central bright band and the first order bright line is 2.11 cm. What is the wavelength of red light?

Example 2

A violet light from a sodium lamp of wavelength 404 nm is aimed at two slits separated by 8.80×10^{-6} m. What is the distance from the central line to the first-order violet line if the screen is 0.700 m from the slits?