Do Now

- Check the homework.
- Get a whiteboard.
- Write the kind of optics/sound topic that you would like to see solved the most.

Optics Topics

- Ray Diagrams: Flat, Concave and & Convex mirrors.
- Snell's Law of Refraction.
- $1/F = 1/Do + 1/Di$
- $M = Hi/Ho = -Di/Do$
- $C=\lambda V$ & $E=hV$
- Color and Light

Sound Topics

- Doppler Effect
- Decibel Calculations
- Frequency, Amplitude & Wavelength
- Constructive and Destructive Interference

Draw the ray diagram for an ___cm object that is ___cm from a concave mirror with a focal length of ___cm.

- Describe the image: real/virtual, orientation, height and distance.

Draw the ray diagram for a __cm object that is __cm from a convex mirror with a focal length of ___cm.

- Describe the image: real/virtual, orientation, height and distance.

An object is ___cm high and ___cm from a mirror. It's image is -__cm from the mirror.

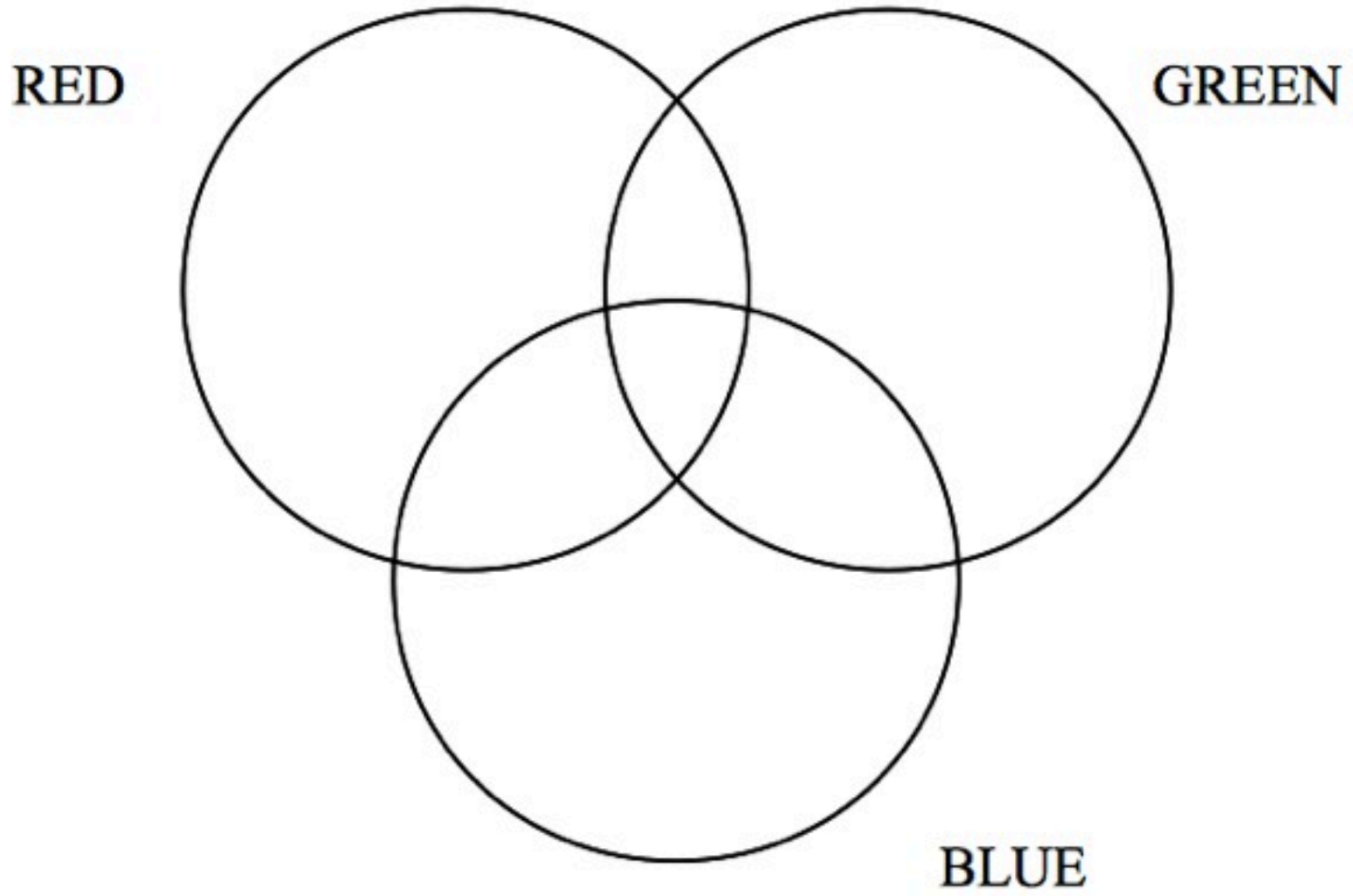
- Find Hi
- Find the focal point.
- Is the mirror convex or concave?

A beam of light travels through air (n=1) and hits a diamond (n=2.4) at an angle of 45°. What is the angle of refraction?

A beam of light goes through the atmosphere of planet X where n=___. The beam hits unobtanium at an angle of ___° with an index of refraction of n=___. What is the angle of refraction?

How Much Information?

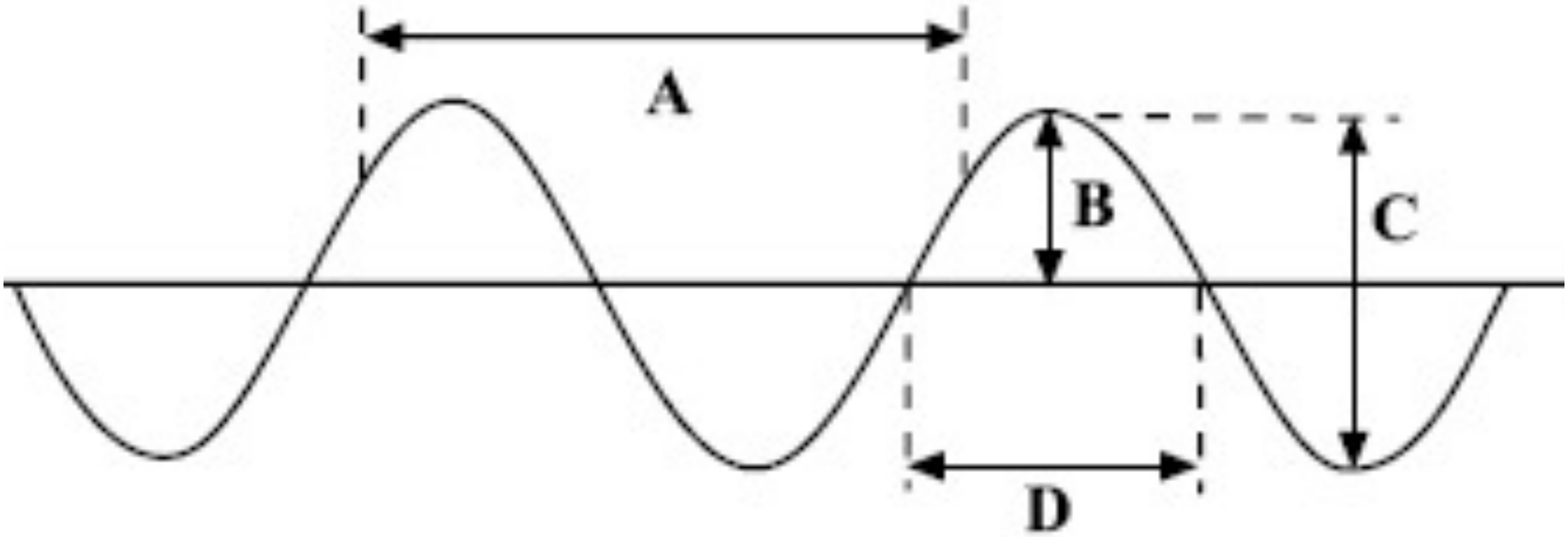
Information Overload



Fill in the Colors

Sinusoidal Motion

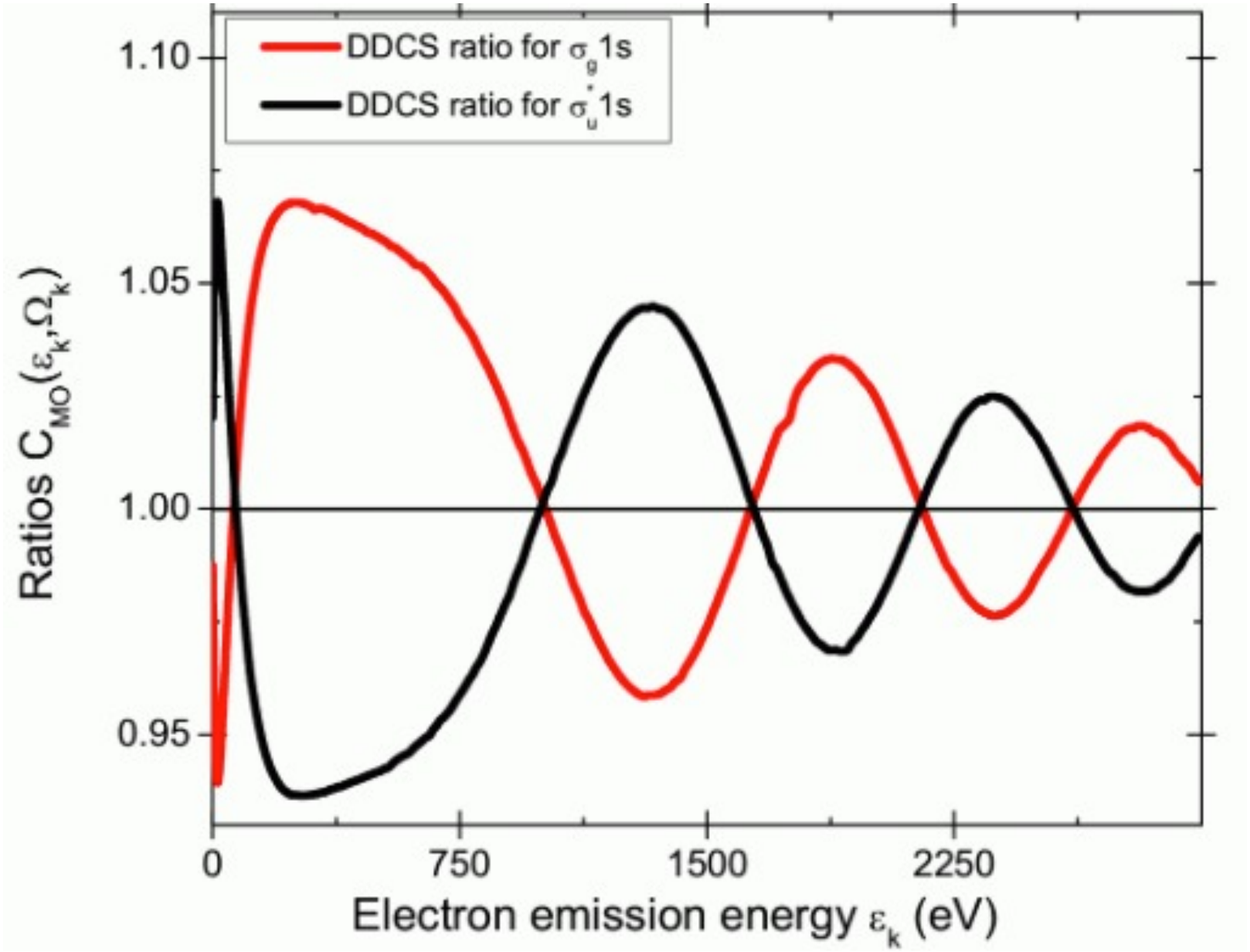
- On your boards:
  - Define it.
  - Draw and example.
  - Explain it to the group next to you.



Draw and Label

A note has a frequency of _____Hz. If the speed of sound in air is 345m/s, what is the wavelength of the wave?

The wavelength of a note is _____cm.
What is the frequency of the note?



Draw the Resultant Wave

A gamma ray has a wavelength of 2x10^(-14)m. What is the energy of this wave?

An electromagnetic wave has an energy of _____x10^(-___)J. What is its wavelength?

Doppler Light Shift

The bat mobile's engine emits a frequency of ___Hz. If it's traveling at ___m/s, what is the perceived frequency of the bat mobile before and after it passes you? What are the wavelengths of the waves?

When my air guitar is all the way up (to 11), the sound comes out at ___ decibels. What the concentration of power (W/m^2)?

The sound coming from Mr. Frankel's motorcycle was measured to be 1W/m^2. What is the noise level in decibels?