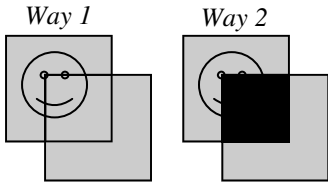
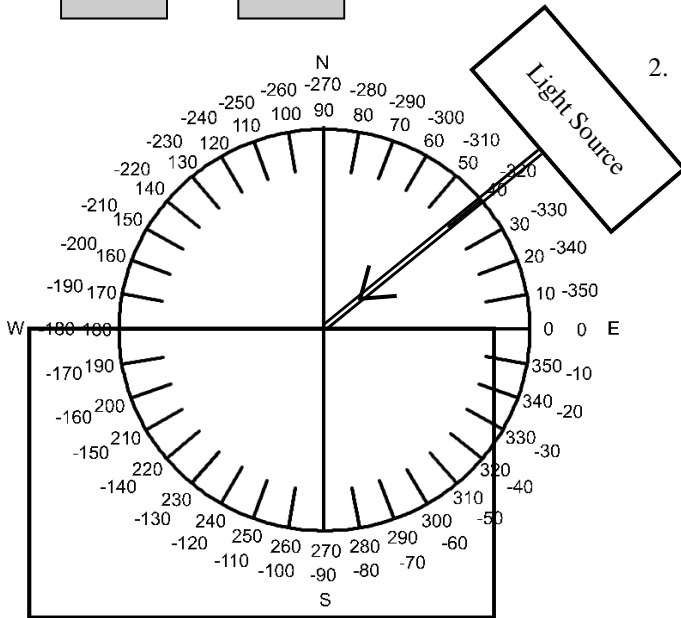


# 2011-12 PreAP Light and Optics 8



- Two polarizers are placed over a happy face.
  - In which situation is one of the polarizers turned  $90^\circ$ ?
  - Does this show the wave or particle property of light?

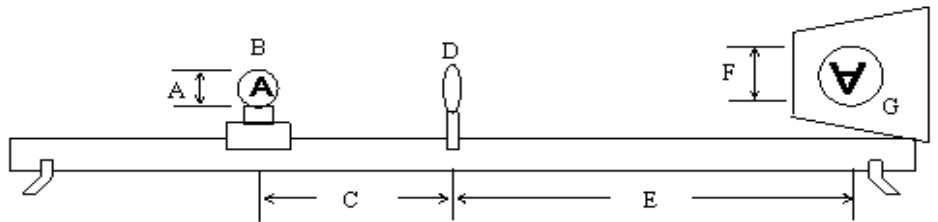


- White light is projected into a transparent substance. For this substance the index of refraction of blue light (450 nm) is 1.4 and the index of refraction of red light (720 nm) is 1.3.
  - \* Calculate the speed of blue light in the transparent substance.
  - \* Calculate the wavelength of blue light in the transparent substance.
  - What is the angle of incident (in air) as the light crosses into the substance.
  - \* Calculate, draw and label the angle of refraction for blue light in the transparent substance.

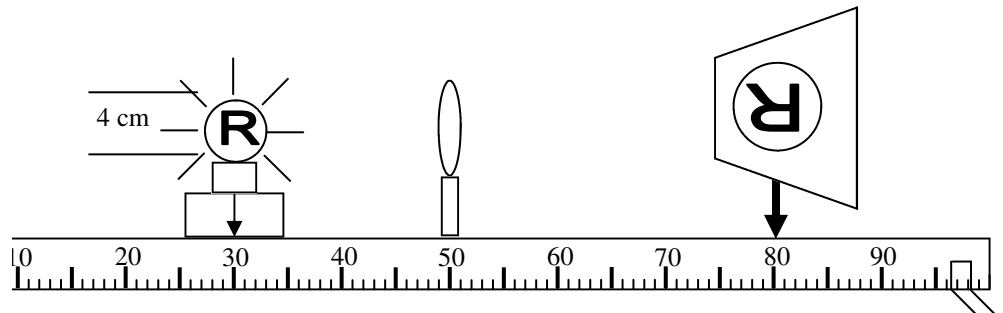
- Calculate the frequency of red light in the transparent substance.
- \* Calculate, draw, and label the angle of refraction for red light in the transparent substance.
- \* Which bent more: red or blue light?

From your "Lens/Mirror Equation and Magnification" notes:

- Label the diagram with  $p$ ,  $q$ ,  $h$ , and  $h'$ . Be sure to mark them with + or -.
  - Is the image real or virtual?
  - Why?
  - Will the magnification be a positive or negative number?



- From the diagram (use centimeters):
  - $p =$        $q =$        $h =$
  - \* Calculate the focal length of this lens.



- Calculate the magnification.

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*TAKS—A periodic table is given here for your convenience and enjoyment.*

5. (Day 16) Find the following:
- Oxidation # for Calcium:
  - Valence Electrons for Chlorine:
  - Is potassium a metal or nonmetal?
  - Number of protons for Bromine?
  - Number of electrons gained or lost by Nitrogen.
  - An isotope of magnesium will have how many protons?

1 H	2A		13A	14A	15A	16A	17A	2 He
3 Li	4 Be		5 B	6 C	7 N	8 O	9 F	10 Ne
11 Na	12 Mg		13 Al	14 Si	15 P	16 S	17 Cl	18 Ar
19 K	20 Ca	<b>Transition Metals</b>	31 Ga	32 Ge	33 As	34 Se	35 Br	36 Kr

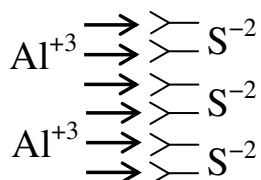
*An Aluminum atom loses 3 electrons (as is its wont [its tendency]).*

- \* How many electrons would it have?
- \* What would be its charge?
- \* Write the formula for the balanced ionic compound formed between Aluminum and Sulfur.

*A Chlorine atom gains 1 electrons, as is its wont.*

- How many electrons would it have?
- What would be its charge?
- Write the formula for the balanced ionic compound formed between Chlorine and Boron.

- 2A)  $v = c/n = 2.14E8$  m/s      2B) find freq first  $3.21E-7$  m  
 3D) Snell's law:  $\theta_2 = 33.2$  degrees      3F)  $\theta_2 = 36.1$  degrees      3G) which bent MORE toward the normal?
- 4A)  $p = 20$  cm     $q = 30$  cm      4B) 12 cm use the  $1/p + 1/q$  equation.  
 5G) Al so 13p and 13 e. So  $13 - 3 = 10$  e  
 5H)  $+13 - 10 = +3$  charge (Same as the oxidation #.....hmmm)



Q1) 63 degrees

Q5) 33.7 degrees