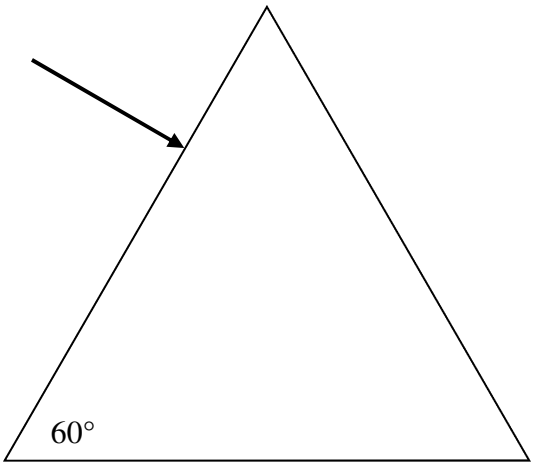
1) A beam of light of wavelength 560 nm hits an equilateral glass prism straight on (at 0° to the normal). Figure out the path of the light in the prism. (*Since it is only green light, we don't have to worry about dispersion. Also, if you want to be sure you have a protractor you like for the test, go buy one or be satisfied with what you get.)*

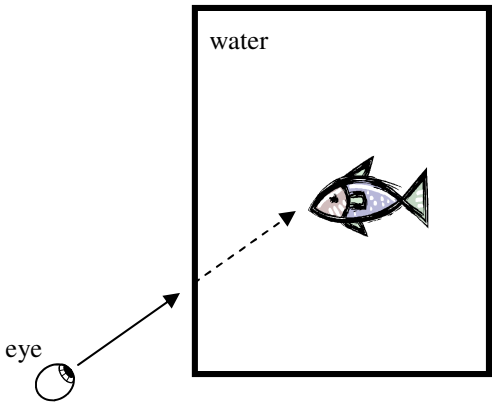


2) Back in Sound, we used intensity to measure what quantity of sound: period, frequency, or amplitude?

3) The intensity of sound decreases or increases as you move away from the sound source?
4) From the equation for intensity of sound, how much does the sound change if you are twice as far away from the source?
5) So, relating both sound and light (back in chapter 14), intensity of both are known as i_____ s_____ laws. (How they change with distance [p556].)

6) So, the brightness of light relates to its: amplitude; period; frequency; color; wavelength?
7) *I assume now that you understand the polarization of light. (Since I showed it.) If you don't understand, you'll have to come in and play with the two polarizers.*
8) In class I showed you a black bowl with a hole in the middle. When you look at the top of the hole you thought you saw a pig (Gauss). When you tried to touch the pig you learned it was a mirage, an optical illusion. The pig is actually inside the double concave mirrors. Why is it that light can trick our eyes? (*Something I mentioned in class about what our brain "thinks" it sees always with light; you can find it on my "Optics" IPC worksheet: 15:1.*)

9) When light passes thru water or glass it _____.
10) Estimate where the fish actually is in the picture at the right.



If you need help with the following go to the internet Lens Applet.
11) Which kind of optical devices can create virtual images?

12) Which kind of optical devices can magnify?

13) Which kind of optical devices can reduce?

14) Which kind of optical devices can create real images?

15) Since both convex and concave lenses can produce virtual images, how could you tell the difference just by knowing the distances to the object and image?

16) Now go to questions 56 in Chapter 14. And let me ask the questions my way
   A) Are the images virtual or real?
   B) Are the images upright or inverted?
   C) What is the same for both images (think equations)?
   D) What is the same for both images magnitude-wise (just the number, but not the direction)?
   E) Which image is for a convex mirror and which image is for a concave mirror (and why)?

   F) See if you can figure out the object distance and focal length. You know enough information now.

17) Chapter 14: question 36.

Due Feb 20

18) Chapter 15 question 53. *You can find the angle rather easily (air and water, guys!). You know the depth. You can then find the distance of the wood from the center of the diamond. However, remember that the you need to know the actual diameter, not radius of the wood. Don't over think this!*

19) Chapter 15 question 58. *You need to reread the basic definition of total internal reflection. You know the angle of incidence, so find the index of refraction of the outside liquid.*

20) I highly suggest you spend time with the Lens Applet (have a cup of coffee together) and read Chapters 14 and 15.

21) Find the focal length of the following optical device.