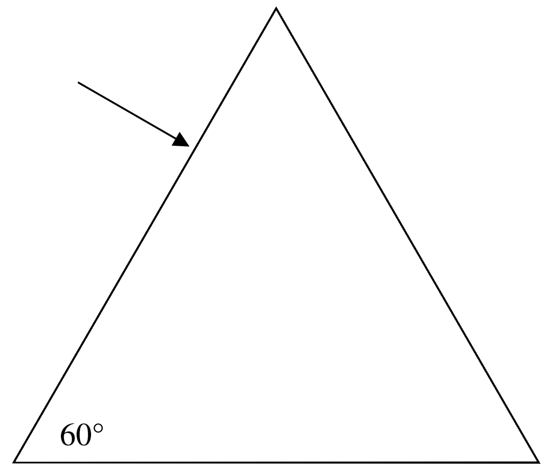
Per 5/6: Tues, Apr 26 Per 1/2: Wed., Apr 27
Per 7/8: Thur., Apr 28

2011 PreAP Light and Optics 6

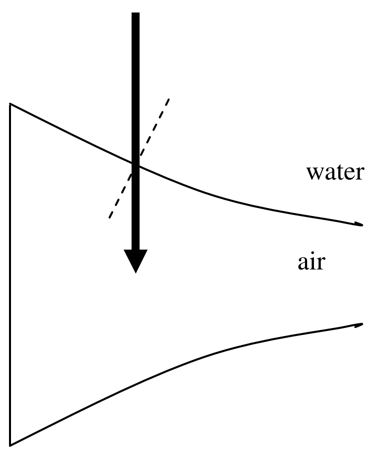
1. A beam of light of wavelength 560 nm in air hits an equilateral **glass** prism perpendicularly. Because it is equilateral, the geometry is pretty easy and you know the index of refraction for glass. (I'll help you fight thru this.)



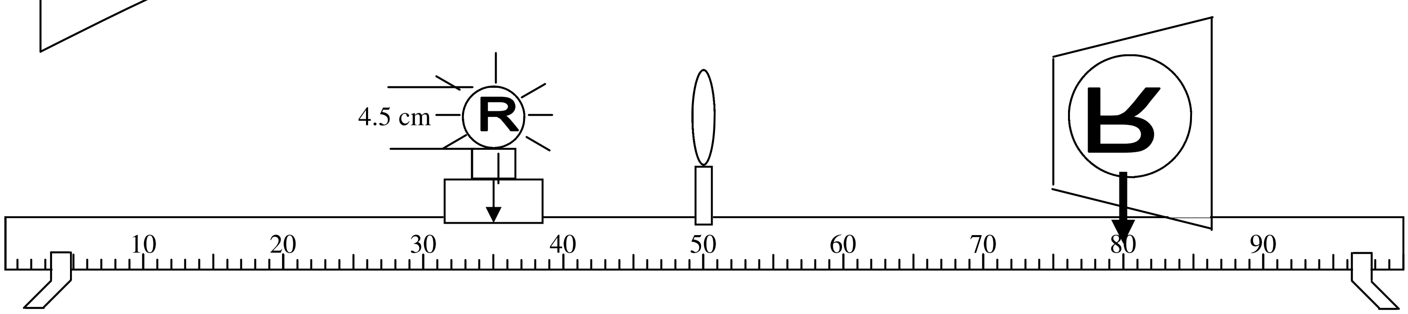
   A. * First, calculate the wavelength of the light in glass.

   B. * Since the light ray hits perpendicular to the surface of the glass, what angle will it have inside the glass?

   C. * Draw the light ray after it has passed straight into the glass. Determine the angle at the second glass boundary.



2. Draw the path of the light ray as it passes into the air lens and back out. For each boundary (water to air and then air to water) draw the straight path (SP) and the normal. The normal for the first boundary is already drawn for you. Be careful with your drawing and it works easily.



Use your "Lens/Mirror Equation and Magnification" notes. And you can work in centimeters.

3. A. For the above diagram, p = ________; q = ________; h = ________.
   B. Calculate the focal length for this lens.

   C. Calculate the height of the image.

   D. Calculate the magnification of the image.

1A) 368 nm   1B) since it hits perpendicular, both sides hit at the same time and it goes straight thru.
1C) You should easily know what angle θ is. But this isn't the right angle for using Snell's law. If you get an error from Snell's Law, then it reflects instead of refracts.