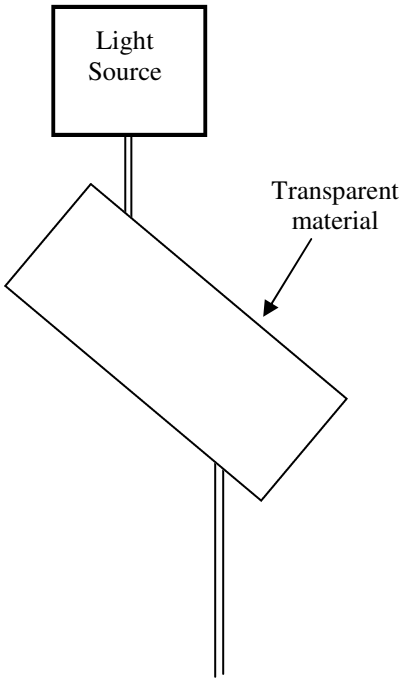
OK—this is going to be dialogue and homework. I assume that you have the basics of light: color; speed of light; optics basics. I think we need a bit more work on refraction and some other "mop up" topics.

1) Find the index of refraction for the transparent material shown.



2) What is the material made of? (*O, yeah, you have a book! PS—read at the very bottom of the table at the asterisk.)*

3) When I pluck my guitar string the string vibrates with a particular frequency. If that frequency was 440 Hz, what frequency would you hear from the string?

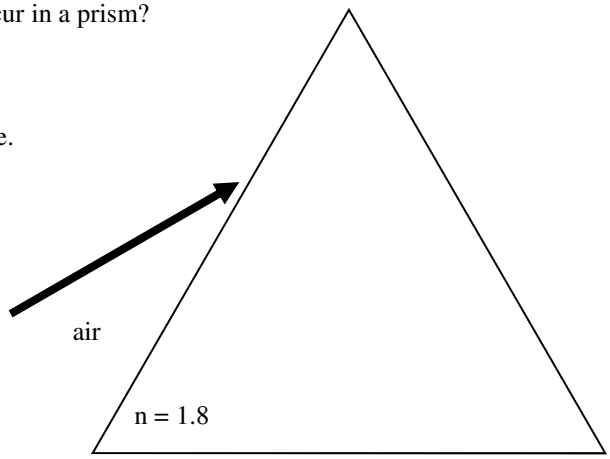
4) So, the frequency stays the same between mediums. Does the speed of the wave stay constant when changing mediums?

5) So what does change?

Read p. 583 and 584, including the side topics.

6) Putting all of the above together, why does a rainbow occur in a prism?

7) Calculate and trace the path of the light thru the substance.



8) What is total internal reflection?

9) You have the equations for snell's law and critical angle. Show me how they are actually the same. (*Explain it to me. PS—I can't tell you how, but you will have to be able to use this logic on the test. Again, the logic is in the book.)*

10) Read about polarization. (p. 546). How can you use two polarizers to create darkness?

11) Read about parabolic mirrors (p. 541) Why would we want to use a parabolic mirror?

Due Feb 14

Using the applet from the internet, again (if you have to).

12) Both convergent and divergent devices can produce virtual images. How could you tell the difference just by p and q?

13) A student works the following problem: "*A convex lens with a 4 cm focal length produces an image 10 cm from the right side of the lens. Find the distance of the object."* The student works the problem and gets an answer of p = 9 cm. WITHOUT WORKING THE PROBLEM, how can you tell that they did it wrong?

14) Do these problems from the book: Ch 14: 21; 27; 37.

Find the images of the following objects.

_____ Lens