Absolute Index of Refraction

The absolute index of refraction is the ratio of the speed of light in a vacuum, c, to the speed of light in a material medium

$$n = \frac{c}{v}$$

- ✓ *n* has no units
- ✓ The greater the value of n, the denser the medium, since the light travels slower in a denser medium
- ✓ The absolute indexes of refraction for different mediums is found in your reference tables

Snell's Law – *on RT*

$$n_1 \sin\theta_1 = n_2 \sin\theta_2$$

Directions: Mathematically solve each of the following problems and draw the incident and refracted rays on a separate sheet of graph paper. Measure and label the corresponding angles.

1. A ray of light in air strikes the surface of water at an incident angle of 10 degrees. What is the angle of the refracted ray?

2. A ray of light in corn oil strikes the surface of ethyl alcohol at an incident angle of 23 degrees. What is the angle of the refracted ray?

3. A ray of light in water strikes the boundary of crown glass at an incident angle of 36 degrees. What is the angle of the refracted ray?

4. A ray of light in air strikes the surface of Zircon at some incident angle. If the angle of the refracted ray is 15 degrees, what was the original angle of the incident ray?

5. A ray of light in Glycerol strikes the surface of Corn oil at some incident angle. If the angle of the refracted ray is 23 degrees, what was the original angle of the incident ray?