Snell's Law Worksheet
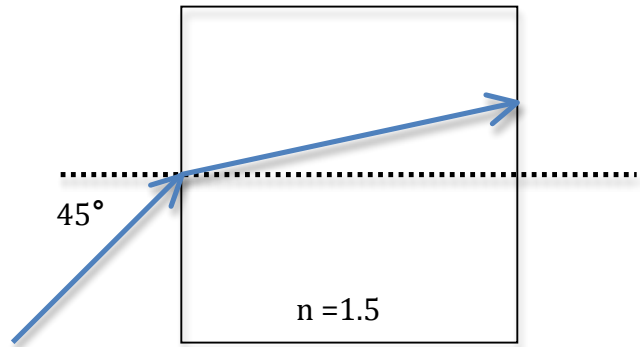
1. The ray of light is incident on the cube at an angle of 45° relative to the normal.
   a. What is the angle it makes WRT the normal within the cube?
   b. What is the angle it makes WRT the normal as it emerges into the air?
   c. If the cube is 8 cm on a side, what is the distance above the normal line that the ray emerges from the cube?

45°

n =1.5

2. If in #1, a different cube was used and the ray emerged 6.5 cm above the normal line, find the index of refraction of the cube.

Air

Water
n=1.33

3. A ray of light 40° from the normal is passing from the air to the water to the carbon disulfide.
   a. Find the angle the ray makes in the water.
   b. Find the angle the ray makes in the water.

CS$_2$
n=1.6
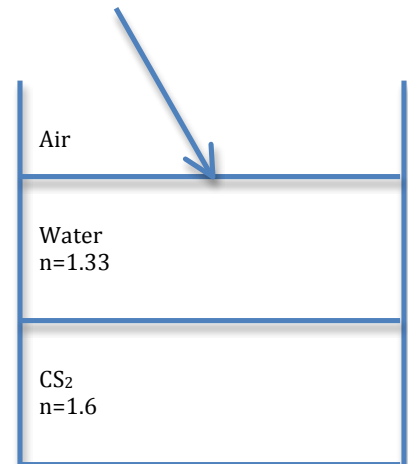
4. A ray of light is incident on the plastic triangle with n=1.2. Find the angle the ray emerges into the air.

45°
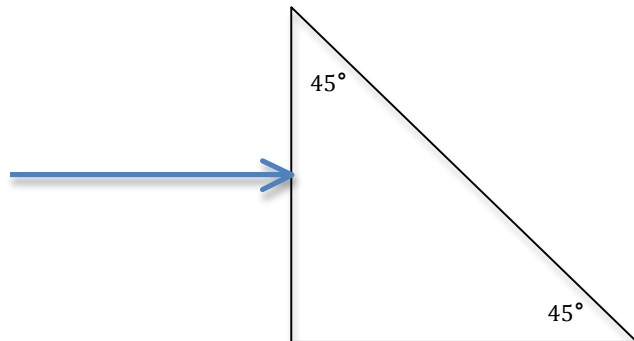
5. Same as #4 but n=1.5

45°

6. Trace the ray through the entire object, labeling the normal and the angles with respect to the normal.

30°

n=1.5
plastic

30°