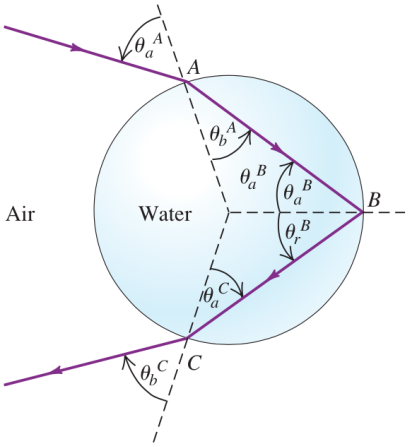
Name: 1C Discussion- Week 7

1. **Green Flash**. Green flashes are sometimes observed as the sun sets over the ocean with little turbulence in the air mass. They usually last between a few seconds and half a minute. Explain the occurence of the green flash in these ideal sunsets.

2. **Double rainbow all the way** *(YF 12th ed. 33.67)*. What does it mean? It means that light undergoes internal reflection *twice*. The figure below shows total internal reflection *once* to aid geometric interpretation of the problem.



(a) Find the angle Δ between the ray before it enters and after it exits the drop.
(b) What is the incident angle θ_1 for which the derivative of Δ with respect to the incident angle θ_1 is zero?
(c) The indexes of refraction for red and violet light in water are $n_v = 1.342$ and $n_r = 1.330$. Find θ_1 and Δ for violet and red light. When you view a secondary rainbow, is red or violet higher above the horizon?