**Snell’s Law Warm-up Bellwork [EQUATION, SUBSTITUTION, MATH, UNITS]**

1. What is the velocity of light in a material with an index of refraction of 2.38?
2. n1 =1.38

 n2 = ?

 θ1 = 59.5°

 θ2 = 49.0°

1. If the index of refraction for a certain glass is 1.60, and the angle of refraction is 19° for a ray of light traveling from air, what is the angle of incidence?
2. A light ray in water (n=1.33) has an angle of 78° from the normal. As it exits into air, (n=1.00), what is the angle of refraction?

Answers below!

Answers: 1) v = 1.26 x 108 m/s 2) n2=1.58 3) θr = 31.4°

 4) There is no angle which has a sine of 1.30, so there is no refracted beam. Total internal reflection.