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1. Given $c_1=1.0$, $c_2=0.6$, the speed of light in media 1 and 2, a surface normal $\vec{n}=(1,1,1)$, and a ray with direction $\vec{d}=(0,0,1)$, find \vec{t} , the direction of refracted light.
2. Give an example of total internal reflection.
3. Using Snell's law, show that $\cos\theta_2=\sqrt{1-\left(\frac{c_2}{c_1}\right)^2\sin^2\theta_1}$
4. Given that the speed of light in air is 99.97% of c , and 75.19% of c in water, find the critical angle for a ray of light coming from water and going into the air.
5. What is the difference between an object with a reflection coefficient of 1 and a mirror?