Sample Problems

1. Calculate the index of refraction for salt if the speed of light in salt is 1.96 x 10^{8}m/s.

2. Light passes from a diamond into alcohol. The index of refraction for diamond is 2.42 and the index of refraction for alcohol is 1.36. The angle of refraction as the light emerges from the diamond is 25°. What was the angle of incidence?

The Index of Refraction Questions

1. A ray from the air, with an index of refraction of 1.00, hits a surface at an angle of 29° from the normal. Its refracted ray follows an angle of 18° from the normal. What is the index of refraction for this medium?

2. Jade has a refractive index of 1.61. If a light ray traveling through plexiglass, with an index of refraction of 1.47, approaches the gem at an angle of 80.0°, what is the angle of refraction?

3. When light passes from water, which has a index of refraction of 1.33, into a diamond, with an index of refraction of 2.42, at an angle of 45° from the normal, what is the angle of refraction?

4. The refractive index of the lens in a human eye is 1.41. If a ray of light goes from air, with a refractive index of 1.00, into the lens at an angle of 55°, what is the angle of refraction?

5. A block of sapphire is placed in water and a laser beam travels from the water through the sapphire. Sapphire has an index of refraction of 1.77. The angle of incidence is 35° while the angle of refraction is 26°. What is the index of refraction of the water?