| Absolute Indices of Refraction <br> $\left(f=5.09 \times 10^{14}\right.$ <br> $\mathrm{Hz})$ |  |
| ---: | ---: |
| Air | 1.00 |
| Corn oil | 1.47 |
| Diamond | 2.42 |
| Ethyl alcohol | 1.36 |
| Glass, crown | 1.52 |
| Glass, flint | 1.66 |
| Glycerol | 1.47 |
| Lucite | 1.50 |
| Quartz, fused | 1.46 |
| Sodium chloride | 1.54 |
| Water | 1.33 |
| Zircon | 1.92 |
|  |  |

(Snell's Law) $n_{i} \sin \theta_{i}=n_{r} \sin \theta_{r}$

1) A ray of light traveling from air into crown glass strikes the surface at an angle of 30 degrees. What will the angle of reflection be?
2) A ray of light traveling from air into crown glass strikes the surface at an angle of 30 degrees. What will the angle of refraction be?
3) What is the index of refraction of a refractive medium if the angle of incidence in air is 30 degrees and the angle of refraction is 15 degrees?
4) If the angle of incidence of light traveling through air, striking water, is 30 degrees, what is the angle of refraction in the water?
5) If the index of refraction for a certain glass is 1.50 , and the angle of refraction is 15 degrees for a ray of light traveling from air, what is the angle of incidence in the air?
6) If the angle of incidence in air is 40 degrees, and it strikes diamond. What angle will it refract at in the diamond?
7) A light ray is traveling through air and strikes a medium at 20 degrees. The refracted angle is found to be 14.565 degrees. What is the medium it is traveling in?
8) A ray of light is traveling from air into another medium and strikes the surface at 25 degrees. If the refracted angle is measured to be 10.057 degrees, what medium did it strike?

## Questions 9 and 10: Refer to the picture below.


9) A light ray is traveling in glass $(\mathrm{n}=1.6)$ and then refracts into air $(\mathrm{n}=1.0)$. If the angle with which it strikes the medium is 30 degrees $\left(\theta_{1}=30^{\circ}\right)$, what is the angle $2\left(\theta_{2}\right)$ as it travels into air?
10) If the angle with which the light ray strikes the medium is 30 degrees $\left(\theta_{1}=30^{\circ}\right)$, what is the reflected angle $3\left(\theta_{3}\right)$ in the glass?

