**Refraction of light**

**Practice Assignment-1**

1. The refractive indices of different media are given. Which of these has the-
2. Highest optical density
3. Lowest optical density

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| Medium | Refractive Index | Medium | Refractive Index |
| Air | 1.003 | Water | 1.33 |
| Kerosene | 1.44 | Turpentine oil | 1.47 |
| Brown glass | 1.52 | Rock salt | 0.54 |
| Ruby | 1.71 | Diamond | 2.42 |

1. Use the values of the refractive indices of water (1.33), kerosene (1.44) and turpentine (1.47), to decide in which of these light travels the fastest?
2. Kerosene is known to float water but its refractive index is more than that of water. Arrange these two media in increasing order of-
3. Density
4. Optical density?
5. Define refractive index of a medium. What is its unit?
6. On what factors does the relative refractive index of two media depend?
7. Light enters from air into water which has a refractive index of 1.33. Calculate the speed of light in water[ speed of light in air is 3.0 x 108ms-1]
8. Light enters from air into a diamond which has a refractive index of 2.42.Calculate the speed of light in diamond.[speed of light in air = 3 x 108ms-1]
9. Draw diagrams to show the path of ray of light when it goes from-
10. Air to glass.
11. Water to air.
12. Define absolute refractive index of a given medium.
13. What is a lens? What are the two kinds of lenses?
14. What are the uses of lenses?
15. What are the two possible ways in which a convex lens can produce magnified image of a given object? What is the difference, if any between these two images?
16. Where an object should be placed in front of a convex lens so as to obtain an image?

(a) at the principal focus of the lens  
(b) at infinity

1. A convex lens has focal length of 30cm. Find the range of values of the object distance for which this lens will produce a –
2. Real, inverted and diminished image.
3. Real inverted and magnified image.
4. Virtual, erect and magnified image.
5. Which one of the following materials cannot be used to make lens?
6. Water c) plastic
7. Glass d)Clay