Index of Refraction & Snell's Law Questions

*Make sure to show all of your work! Each question **would** be worth 5 marks!*

1. Calculate the speed of light for the following mediums:
   a. Water (n=1.33);
   b. Diamond (n=2.42)
   c. Plexiglas (n=1.51)

2. Calculate the refractive index for a substance if the speed of light in that medium is
   a. 2.1×10^8 m/s
   b. 1.5×10^8 m/s

3. Calculate the speed of light in a hypothetical material you have discovered and named in honour of yourself. Its refractive index is 0.90.

4. Calculate the angle of refraction for light as it passes from air to each of the mediums;
   a. Water (n=1.33);
   b. Diamond (n=2.42)
   c. Plexiglas (n=1.51)

   At an incidence angle of 25°.

5. An angle of incidence of 20° in water results in an angle of refraction of 15°.
   a. Is the second medium more of less optically dense than the first medium?
   b. Find the n of the second medium
   c. Find the speed of light in each medium
   d. Repeat this question for an angle of refraction of 25°