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LET US ASSESS - ANSWERS

1. Water
2. a. i. Convex lens ii. Concave lens
   b. Convex. Object at 2f
3. a. Convex b. magnified, inverted, real
   c. see page 111
4. see page 113, Power $= \frac{1}{f} = \frac{1}{\frac{-25}{100}} = -4D$
5. a. medium 1 As optical density increases the ray bends more towards the normal.
   b. Medium 1
6. a. $v = \frac{fu}{f+u} = \frac{20 \times^{-} 30}{20 +^{-} 30} = \frac{-600}{-10} = 60$ cm

   b. Large, inverted, real

   c. $\frac{IM}{OB} = \frac{v}{u}$, $IM = OB \times \frac{v}{u} = \frac{3 \times 60}{-30} = -6$ cm
7. a. Highest optical density - Diamond
      Lowest optical density - Air

   b. $\frac{3 \times 10^8 m/s}{1.44} = 2.08 \times 10^8$ m/s

   c. Towards the normal

   d. Diamond has greater optical density.

   The speed of light in diamond is $\frac{1}{2.42}$ times less than the speed of light in air.

   So the speed of light in diamond $= \frac{3 \times 10^8 m/s}{2.42}$

   $= 1.25 \times 10^8$ m/s