

Video Solution on Website:-

<https://physicsaholics.com/home/courseDetails/31>

Video Solution on YouTube:-

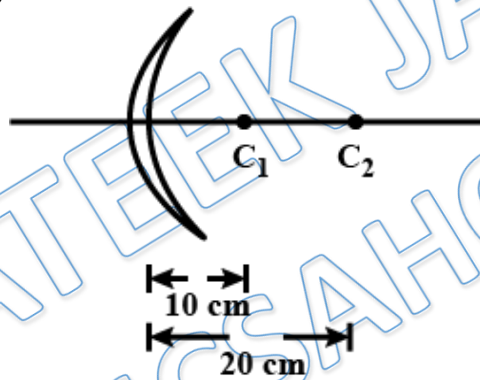
<https://youtu.be/PA4Quk5HBvM>

Written Solution on YouTube:-

<https://physicsaholics.com/note/notesDetailis/58>

- Q 1. A biconvex lens has a focal length $\frac{2}{3}$ times the radius of curvature of either surface. The refractive index of the lens material is :
- (a) 1.57 (b) 1.23
(c) 1.75 (d) 2.13

- Q 2. In figure the points C_1 and C_2 denote the centers of curvatures then the focal length of the thin lens ($\mu=1.5$) is



- (a) 40 cm (b) 10 cm
(c) 20 cm (d) 30 cm

- Q 3. A tree is 18.0 m away and 2.0 m high from a concave lens. How high is the image formed by the given lens of focal length 6 m ?

- (a) 1 m (b) 0.5 m
(c) 2 m (d) 1.5 m

- Q 4. The focal length of a symmetric bi-convex lens is 20cm. If the refractive index of the material of the prism is 1.5, the radius of curvature of one of two surfaces is

- (a) 10 cm (b) 20 cm
(c) 30 cm (d) 40 cm

- Q 5. A biconvex lens behaves as a converging lens in air and a diverging lens in water ($\mu=1.33$). The refractive index (μ_0) of the material is

- (a) $\mu_0 = 1$ (b) $\mu_0 = 1.33$
(c) $1 < \mu_0 < 1.33$ (d) $\mu_0 > 1.33$



- Q 6. A convex lens is immersed in a liquid of refractive index greater than that of glass. It will behave as a
(a) Converging lens (b) diverging lens
(c) Plane glass (d) homogeneous liquid
- Q 7. A thin lens made of glass of refractive index $\mu = 1.5$ has a focal length equal to 12 cm in air. It is now immersed in water ($\mu = \frac{4}{3}$). Its new focal
(a) 26 cm (b) 12 cm
(c) 56 cm (d) 48 cm
- Q 8. The radius of curvature for a convex lens is 40 cm, for each surface. Its refractive index is 1.5. The focal length will be
(a) 10 cm (b) 40 cm
(c) 15 cm (d) 25 cm
- Q 9. A concavo-convex lens is made of glass of refractive index 1.5. The radii of curvature of its two surfaces are 30cm and 50cm. Its magnitude focal length when placed in a liquid of refractive index 1.4 is
(a) 1150 cm (b) 85 cm
(c) 150 cm (d) 1050 cm
- Q 10. When an object is at a distance u_1 and u_2 from a lens, real image and a virtual image formed by the same lens are real and virtual, respectively, and of same size. Then, the focal length of the lens is:
(a) $\frac{\sqrt{u_1 u_2}}{2}$ (b) $\frac{1}{2}(u_1 + u_2)$
(c) $\sqrt{u_1 u_2}$ (d) $2(u_1 + u_2)$
- Q 11. An object is placed at a distance of 20 cm from a convex lens of focal length 10 cm. The image is formed on the other side of the lens at a distance
(a) 5 cm (b) 15 cm
(c) 20 cm (d) 35 cm
- Q 12. A diverging meniscus lens has a focal length of -20 cm. If the lens is held 10 cm from the object, the magnification is :
(a) +0.67 (b) -0.67
(c) -2 (d) +2
- Q 13. The magnification of an object placed in front of a convex lens is +2. The focal length of the lens is 2.0 meters. Find the distance by which object has to be moved to obtain a magnification of -2 (in meters)
(a) 1 (b) 2
(c) 3 (d) 4
- Q 14. An object is placed at a distance of 4 cm from a concave lens of focal length 12 cm. Find the position and nature of the image.
(a) real, 3cm, smaller than object



- (b) virtual, 3cm, Larger than object
- (c) real, 1cm, smaller than object
- (d) virtual, 3cm, Smaller than object

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Answer Key

Q.1 c	Q.2 a	Q.3 b	Q.4 b	Q.5 c
Q.6 b	Q.7 d	Q.8 b	Q.9 d	Q.10 b
Q.11 c	Q.12 a	Q.13 b	Q.14 d	