

Section A

- Write the answer of the following questions. [Each carries 1 Mark] [10]
1. Derive $i + e = A + \delta$ for a triangular glass prism.
 2. Obtain the equation of effective focal length for combination of thin lenses in contact.
 3. A beam of light converges at a point P. Now lens is placed in the path of the convergent beam 12 cm from P. At what point does the beam converge if the lens is (a) a convex lens of focal length 20 cm and (b) a concave lens of focal length 16 cm ?
 4. (a) The radii of curvature of the faces of a double convex lens are 10 cm and 15 cm. Its focal length is 12 cm. What is the refractive index of glass ?
(b) A convex lens has 15 cm focal length in air. What is focal length in water ?
(Refractive index of air-water = 1.33 and Refractive index of air-glass = 1.5)
 5. Derive lensmaker's formula for thin lens.
 6. Use the mirror equation to deduce that :
(a) An object placed between f and $2f$ of a concave mirror produces a real image beyond $2f$.
(b) The virtual image produced by a convex mirror is always diminished in size and is located between the focus and the pole.
 7. A compound microscope consists of an objective lens of focal length 2.0 cm and an eye piece of focal length 6.25 cm separated by a distance 15 cm. How far from the objective should an object be placed in order to obtain the final image at (a) the least distance of distinct vision (25 cm) and (b) at infinity? What is the magnifying power of microscope in each case ?
 8. What is simple microscope ? Obtain the equation of magnification for the image formed at normal vision distance.
 9. A compound microscope consists of an objective lens of focal length 2.0cm and an eyepiece of focal length 6.25cm separated by a distance of 15cm. How far from the objective should an object be placed in order to obtain the final image at (a) the least distance of distinct vision (25cm), and (b) at infinity ? What is the magnifying power of the microscope in each case ?
 10. A screen is placed 90 cm from an object. The image of the object on the screen is formed by a convex lens at two different locations separated by 20 cm. Determine the focal length of the lens.

OPEN STUDENT FOUNDATION**CHAPTER 09****Physics (Class 12)
PRACTICE SHEET DAY 9****Date : 24/02/24**

Section [A] : 1 Marks Questions

No	Ans	Chap	Sec	Que	Universal_Queld
1.	-	Chap 9	S8	1	QP23P11B1211_P2C9S8Q1
2.	-	Chap 9	S8	2	QP23P11B1211_P2C9S8Q2
3.	-	Chap 9	S8	3	QP23P11B1211_P2C9S8Q3
4.	-	Chap 9	S8	4	QP23P11B1211_P2C9S8Q4
5.	-	Chap 9	S8	5	QP23P11B1211_P2C9S8Q5
6.	-	Chap 9	S8	6	QP23P11B1211_P2C9S8Q6
7.	-	Chap 9	S8	8	QP23P11B1211_P2C9S8Q8
8.	-	Chap 9	S9	16	QP23P11B1211_P2C9S9Q16
9.	-	Chap 9	S9	20	QP23P11B1211_P2C9S9Q20
10.	-	Chap 9	S10	19	QP23P11B1211_P2C9S10Q19

OPEN STUDENT FOUNDATION

CHAPTER 09

Physics (Class 12) PRACTICE SHEET DAY 9

Date : 24/02/24

Section A

- Write the answer of the following questions. [Each carries 1 Mark] [10]
1. Derive $i + e = A + \delta$ for a triangular glass prism.
➡ Try Yourself
 2. Obtain the equation of effective focal length for combination of thin lenses in contact.
➡ Try Yourself
 3. A beam of light converges at a point P. Now lens is placed in the path of the convergent beam 12 cm from P. At what point does the beam converge if the lens is (a) a convex lens of focal length 20 cm and (b) a concave lens of focal length 16 cm ?
➡ (a) At 7.5 cm distance on right side of convex lens.
(b) At 48 cm distance on right side of concave lens.
 4. (a) The radii of curvature of the faces of a double convex lens are 10 cm and 15 cm. Its focal length is 12 cm. What is the refractive index of glass ?
(b) A convex lens has 15 cm focal length in air. What is focal length in water ?
(Refractive index of air-water = 1.33 and Refractive index of air-glass = 1.5)
➡ Try Yourself
 5. Derive lensmaker's formula for thin lens.
➡ Try Yourself
 6. Use the mirror equation to deduce that :
(a) An object placed between f and $2f$ of a concave mirror produces a real image beyond $2f$.
(b) The virtual image produced by a convex mirror is always diminished in size and is located between the focus and the pole.
➡ Try Yourself
 7. A compound microscope consists of an objective lens of focal length 2.0 cm and an eye piece of focal length 6.25 cm separated by a distance 15 cm. How far from the objective should an object be placed in order to obtain the final image at (a) the least distance of distinct vision (25 cm) and (b) at infinity ? What is the magnifying power of microscope in each case ?
➡ Try Yourself
 8. What is simple microscope ? Obtain the equation of magnification for the image formed at normal vision distance.
➡ Try Yourself
 9. A compound microscope consists of an objective lens of focal length 2.0cm and an eyepiece of focal length 6.25cm separated by a distance of 15cm. How far from the objective should an object be placed in order to obtain the final image at (a) the least distance of distinct vision (25cm), and (b) at infinity ? What is the magnifying power of the microscope in each case ?
➡ Try Yourself
 10. A screen is placed 90 cm from an object. The image of the object on the screen is formed by a convex

lens at two different locations separated by 20 cm. Determine the focal length of the lens.

▣▣▣▣ Try Yourself