# INTERNATIONAL INDIAN SCHOOL BURAIDAH

Worksheet for the Academic Year 2023-24

CLASS:10 SUBJECT: PHYSICS   DATE:10/4/2023

LESSON : LIGHT-REFLECTON AND REFRACTION

1. Draw a labelled ray diagram to show the path of the reflected ray corresponding to an incident ray of light parallel to the principal axis of a convex mirror. Mark the angle of

2. AB and CD, two spherical mirrors, from parts of a hollow spherical ball with its centre at O as shown in the diagram. If arc AB = 12 arc CD, what is the ratio of their focal lengths? State which of the two mirrors will always form virtual image of an object placed in front of it and why?
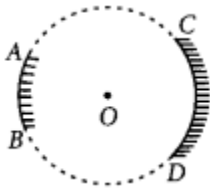
3. The linear magnification produced by a spherical mirror is +3. Analyse this value and state the (i) type of mirror and (ii) position of the object with respect to the pole of the mirror. Draw a ray diagram to show the formation of image in this case.

4. Draw a ray diagram to show the path of the reflected ray corresponding to an incident ray of light parallel to the principal axis of a concave mirror. Mark the angle of incidence and angle of reflection on it.

5. List two possible ways in which a concave mirror can produce a magnified image of an object placed in front of it. State the difference if any between these two images.

6. The image formed by a concave mirror is observed to be virtual, erect and larger than the object. Where should the position of the object be relative to the mirror? Draw ray diagram to justify your answer.

7. The linear magnification produced by a spherical mirror is +1/3. Analysing this value state the (i) type of mirror and (ii) position of the object with respect to the pole of the mirror. Draw any diagram to justify your answer.

8. A concave mirror is used for image formation for different positions of an object. What inferences can be drawn about the following when an object is placed at a distance of 10 cm from the pole of a concave mirror of focal length 15 cm?
(a) Position of the image

(b) Size of the image

(c) Nature of the image

Draw a labelled ray diagram to justify your inferences.

9. he refractive indices of glass and water with respect to air are 3/2 and 4/3 respectively. If speed of light in glass is 2×10^8 m/s, find the speed of light in water.

10. The image of an object formed by a lens is of magnification -1. If the distance between the object and its image is 60 cm, what is the focal length of the lens? If the object is moved 20 cm towards the lens, where would the image be formed? State reason and also draw a ray diagram in support of your answer.