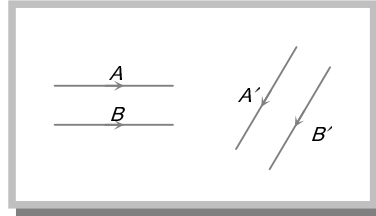


**Reflection of Light**

1. The figure shows two rays  $A$  and  $B$  being reflected by a mirror and going as  $A'$  and  $B'$ . The mirror is

- (a) Plane  
(b) Concave  
(c) Convex  
(d) May be any spherical mirror

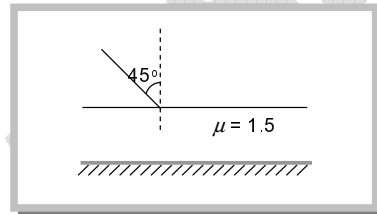


2. An object is initially at a distance of  $100\text{ cm}$  from a plane mirror. If the mirror approaches the object at a speed of  $5\text{ cm/s}$ , then after  $6\text{ s}$  the distance between the object and its image will be

- (a)  $60\text{ cm}$  (b)  $140\text{ cm}$  (c)  $170\text{ cm}$  (d)  $150\text{ cm}$

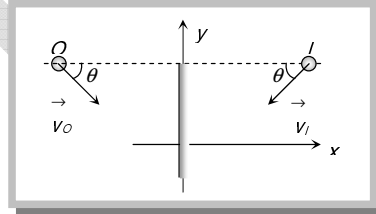
3. One side of a glass slab is silvered as shown. A ray of light is incident on the other side at angle of incidence  $i = 45^\circ$ . Refractive index of glass is given as  $1.5$ . The deviation of the ray of light from its initial path when it comes out of the slab is

- (a)  $90^\circ$   
(b)  $180^\circ$   
(c)  $120^\circ$   
(d)  $45^\circ$



4. If an object moves towards a plane mirror with a speed  $v$  at an angle  $\theta$  to the perpendicular to the plane of the mirror, find the relative velocity between the object and the image

- (a)  $v$   
(b)  $2v$   
(c)  $2v \cos \theta$   
(d)  $2v \sin \theta$



5. A convex mirror of focal length  $10\text{ cm}$  forms an image which is half of the size of the object. The distance of the object from the mirror is

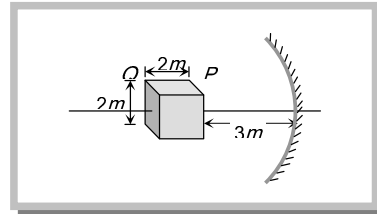
- (a)  $10\text{ cm}$  (b)  $20\text{ cm}$  (c)  $5\text{ cm}$  (d)  $15\text{ cm}$

6. A concave mirror is used to focus the image of a flower on a nearby well  $120\text{ cm}$  from the flower. If a lateral magnification of  $16$  is desired, the distance of the flower from the mirror should be

- (a)  $8\text{ cm}$  (b)  $12\text{ cm}$  (c)  $80\text{ cm}$  (d)  $120\text{ cm}$

7. A cube of side  $2\text{ m}$  is placed in front of a concave mirror focal length  $1\text{ m}$  with its face  $P$  at a distance of  $3\text{ m}$  and face  $Q$  at a distance of  $5\text{ m}$  from the mirror. The distance between the images of face  $P$  and  $Q$  and height of images of  $P$  and  $Q$  are

- (a)  $1\text{ m}, 0.5\text{ m}, 0.25\text{ m}$   
(b)  $0.5\text{ m}, 1\text{ m}, 0.25\text{ m}$   
(c)  $0.5\text{ m}, 0.25\text{ m}, 1\text{ m}$   
(d)  $0.25\text{ m}, 1\text{ m}, 0.5\text{ m}$



8. A concave mirror of radius of curvature  $60\text{ cm}$  is placed at the bottom of tank containing water upto a height of  $20\text{ cm}$ . The mirror faces upwards with its axis vertical. Solar light falls normally on the surface of water and the image of the sun is formed. If  ${}^a\mu_w = \frac{4}{3}$  then with the observer in air, the distance of the image from the surface of water is

- (a)  $30\text{ cm}$  (b)  $10\text{ cm}$  (c)  $7.5\text{ cm}$  above (d)  $7.5\text{ cm}$  below

9. A dentist uses a small mirror that gives a magnification of  $4$  when it is held  $0.60\text{ cm}$  from a tooth. The radius of curvature of the mirror is

- (a)  $1.60\text{ cm}$  (convex) (b)  $0.8\text{ cm}$  (concave) (c)  $1.60\text{ cm}$  (concave) (d)  $0.8\text{ cm}$  (convex)

## GRAVITY CLASSES

10. A dice is placed with its one edge parallel to the principal axis between the principal focus and the centre of the curvature of a concave mirror. Then the image has the shape of  
(a) Cube (b) Cuboid (c) Barrel shaped (d) Spherical
11. Radius of curvature of concave mirror is  $40\text{ cm}$  and the size of image is twice as that of object, then the object distance is  
(a)  $60\text{ cm}$  (b)  $20\text{ cm}$  (c)  $40\text{ cm}$  (d)  $30\text{ cm}$
12. All of the following statements are correct except  
(a) The magnification produced by a convex mirror is always less than one  
(b) A virtual, erect, same-sized image can be obtained using a plane mirror  
(c) A virtual, erect, magnified image can be formed using a concave mirror  
(d) A real, inverted, same-sized image can be formed using a convex mirror
13. Two plane mirrors are inclined at an angle of  $72^\circ$ . The number of images of a point object placed between them will be  
(a) 2 (b) 3 (c) 4 (d) 5
14. To get three images of a single object, one should have two plane mirrors at an angle of  
(a)  $30^\circ$  (b)  $60^\circ$  (c)  $90^\circ$  (d)  $120^\circ$
15. The light reflected by a plane mirror may form a real image  
(a) If the rays incident on the mirror are diverging (b) If the rays incident on the mirror are converging  
(c) If the object is placed very close to the mirror (d) Under no circumstances