

LIGHT REFLECTION AND REFRACTION

1. Where is the image formed in a convex mirror, when the object is anywhere in front of it ?
2. A person uses concave mirror for shaving, where should he position his face in front of it ?
3. A ray of light is incident on a concave mirror along its principal axis. What will be the angle of reflection?
4. What will happen to ray of light when it travels from rarer medium to a denser medium ?
5. What does negative sign in the value of magnification of a mirror indicate?
6. Name the point inside the lens through which a ray of light goes undeviated?
7. Which of the two has a great power? A lens of short focal length or a lens of large focal length?
8. Name the lens which always gives an erect and diminished image?
9. Which mirror is used as rear view mirror in vehicles and why ?
10. Define one diopetre?
11. The size of an object is 2cm. The magnification produced by a mirror is +1. What is the size of the image?
12. When a ray of light passes from a denser medium to a rarer medium which angle is greater: angle of incidence or angle of refraction?
13. An image formed in a spherical mirror has magnification -2. Is the image real or virtual?
14. The power of a lens is -2D. Is the lens convex or concave?
15. Focal length of a convex mirror is 10cm. Find the radius of curvature of the mirror?
16. An object is placed at a distance of 50cm from a convex mirror. State two characteristics of the image formed.
17. Write two uses of concave mirror.
18. An object 1cm high produces a real image 1.5 cm high, when placed at a distance of 15 cm from concave mirror. Calculate the position of the image.
19. Find the power of a concave lens of focal length 2m.
20. Which phenomenon occurs when light falls on (a) highly polished surface (b) a transparent medium ?
21. What will happen to a ray of light when it falls normally on a surface ?
22. What is absolute refractive index ?
23. If refractive index of glass is 1.65, What is the speed of light in glass. ?
24. The magnification " m " for a mirror is +1 what does this signify ?

ANSWERS OF THE ABOVE QUESTIONS

1. Between pole and focus, behind the convex mirror.
 2. Between pole and principal focus.
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3. Angle of reflection = 0
4. Bends towards the normal .
5. Image is real.
6. Optical centre.
7. Lens of short focal length.
8. Concave lens.
9. Convex mirror, wider field of view.
10. One dioptre is the power of a lens of focal length one meter.
11. +2cm, because $m=I/O$, $+1=I/2 =+2$
12. Angle of refractions.
13. Real.
14. Concave lens.
15. 20cm.
16. (1) Image is virtual and erect.
(2) Image is diminished.
17. (1) Used as reflectors for automobile headlights.
(2) Used as shaving mirror.
18. $-v/u = h'/h$, $-v/-15 = -1.5/1$
 $v = 15 \times 1.5 = -22.5\text{cm}.$
19. $-p = 1/f$
 $=1/-2 = -0.5\text{D}.$
20. (a) Reflection of light.
(b) Refraction of light.
21. No bending of light ray occurs. It means light rays goes straight from one medium to another.
22. When first medium is taken as vaccum, the refractive index of second medium is called as absolute refractive index.
23. Refractive Index of glass = $\frac{\text{Speed of Light in vaccum}}{\text{Speed of Light in glass}}$
 $\rightarrow 1.65 = \frac{3 \times 10^8}{V_g}$ $\rightarrow V_g = \frac{3 \times 10^8}{1.65}$
 $\rightarrow 1.8 \times 10^8 \text{ m/s}$
24. (a) Image is of same size as the object.
(b) Image is virtual and erect .
