

**Light - Reflection and Refraction
Science | Worksheet | Class X**

1. Focal length of plane mirror is
 - a. At infinity
 - b. Zero
 - c. Negative
 - d. None of these

2. Image formed by plane mirror is
 - a. Real and erect
 - b. Real and inverted
 - c. Virtual and erect
 - d. Virtual and inverted

3. A concave mirror gives real, inverted and same size image if the object is placed
 - a. At F
 - b. At infinity
 - c. At C
 - d. Beyond C

4. Power of the lens is -40, its focal length is
 - a. 4m
 - b. -40m
 - c. -0.25m
 - d. -25m

5. A concave mirror gives virtual, refract and enlarged image of the object but image of smaller size than the size of the object is
 - a. At infinity
 - b. Between F and C
 - c. Between P and F
 - d. At E

6. In optics an object which has higher refractive index is called
 - a. Optically rarer
 - b. Optically denser
 - c. Optical density
 - d. Refractive index

7. The optical phenomena, twinkling of stars, is due to
 - a. Atmospheric reflection
 - b. Total reflection
 - c. Atmospheric refraction
 - d. Total refraction

8. Convex lens focus a real, point sized image at focus, the object is placed
 - a. At focus
 - b. Between F and 2F
 - c. At infinity
 - d. At 2F

9. The unit of power of lens is
 - a. Metre
 - b. Centimeter
 - c. Diopter
 - d. M^{-1}

10. The radius of curvature of a mirror is 20cm the focal length is
 - a. 20cm
 - b. 10cm
 - c. 40cm
 - d. 5cm

Answers

1. A
2. C
3. C
4. C
5. C
6. B
7. C
8. C
9. C
10. B

Answer the following Questions:

1. List four characteristics of the images formed by plane mirrors.

2. Draw a ray diagram to show the path of the reflected ray corresponding to an incident ray which is directed parallel to the principal axis of a convex mirror. Mark on it the angle of incident and the angle of reflection

3. A spherical mirror produces an image of magnification -1 on a screen placed at a distance of 50 cm from the mirror.

- a. Write the type of mirror.
 - b Find the distance of the image from the object.
 - c. What is the focal length of the mirror?
 - d. Draw the ray diagram to show the image formation in this case.
4. State the laws of refraction of light. If the speed of light in vacuum is $3 \times 10^8 \text{ ms}^{-1}$, find the speed of light in a medium of absolute refractive index 1.5.
 5. Which phenomenon is responsible for making the path of light visible?
 6. When we place a glass prism in the path of a narrow beam of white light a spectrum is obtained.
 7. What happens when a second identical prism is placed in an inverted position with respect to the first prism? Draw a labeled ray diagram to illustrate it.
 8. The power of the lens is -4.0D . What is the nature of this lens?
 9. Which type of mirror is used to give erect and enlarged image of an object?
 10. Draw the ray diagram and also state the position, the relative size and the nature of image formed by a concave mirror when the object is placed at the centre of curvature of the mirror.
 11. What is the magnification of a plane mirror
 12. What is the radius of curvature of plane mirror?
 13. Why paper catches fire when a convex lens is used to focus sunlight?
 14. What is silvering of mirror?
 15. What is refractive mirror?
 16. State the formula, lens formula and power of lens
 17. The refractive index of water is 1.33 and kerosene is 1.44. Calculate refractive index of the kerosene with respect to water.
 18. What kind of mirrors are used in big shopping stores to watch activities of customers?
 19. Give mirror image of word "AMBULANCE"
 20. The magnification produced by a plane mirror is $+1$. What does it mean?