



PHYSICS

NCERT - NCERT PHYSICS(TELUGU)

REFLECTION OF LIGHT AT CURVED SURFACES

Exercise

1. Where will the image be formed when we place an object, on the principal axis of a

concave mirror at a point between focus and centre of curvature ?



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2. State the differences between convex and concave mirrors.



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3. Distinguish between real and virtual images.



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4. How do you get a virtual image using a concave mirror ?



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5. What do you know about the terms given below related to spherical mirrors ?

Pole

Centre of curvature

Focus

Radius of curvature

Focal length

Principal axis

Object distance, u Image distance

Magnification.



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6. What is centre of curvature ?



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7. What do you know about the terms given below related to spherical mirrors ?

Pole

Centre of curvature

Focus

Radius of curvature

Focal length

Principal axis

Object distance, u Image distance

Magnification.



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8. What do you know about the terms given below related to spherical mirrors ?

Pole

Centre of curvature

Focus

Radius of curvature

Focal length

Principal axis

Object distance, u Image distance

Magnification.



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9. What is focal length ?



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10. What do you know about the terms given below related to spherical mirrors ?

Pole

Centre of curvature

Focus

Radius of curvature

Focal length

Principal axis

Object distance, u Image distance

Magnification.



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11. What do you know about the terms given below related to spherical mirrors ?

Pole

Centre of curvature

Focus

Radius of curvature

Focal length

Principal axis

Object distance, u Image distance

Magnification.



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12. Magnification $m =$



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13. Find the distance of the image when an object is placed on the principal axis at a distance of 10 cm in front of a concave mirror whose radius of curvature is 8 cm.



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14. The magnification produced by a mirror is $+1$. What does it mean ?



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15. If the spherical mirrors were not known to human beings, guess the consequences.



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16. Draw suitable rays by which we can guess the position of the image formed by a concave mirror.



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17. Show the formation of image with a ray diagram, when an object is placed on the principal axis of a concave mirror away from the centre of curvature.



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18. Why do we prefer a convex mirror as a rear-view mirror in the vehicles?



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19. A convex mirror with a radius of curvature of 3m is used as a rear view mirror for a vehicle. If a bus is located at 5m from this mirror, find the position, nature and size of the image.



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20. To form the image on the object itself, how should we place the object in front of a concave mirror? Explain with a ray diagram.



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21. Think about the objects which acts as a concave or convex mirrors in your surroundings. Make a table of these objects and display in your class room.



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22. Explain an activity to find the normal to a curved surface.



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23. How do you identify the focal point in focal length of concave mirror?



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24. The image formed by a concave mirror



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25. Is the image formed by a bulged surface

Same as the image formed by a plane mirror?



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26. Is the mirror used in an automobile a plane

mirror? Why is it showing small images?



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27. Why does our image appeared thin or bulged out in some mirrors?



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28. Which property of concave mirror is used by dentist?



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29. What is meant by converging of light rays?



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30. When do you say light rays are diverging?



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31. If focal length is 20 cm then what is the radius of curvature of the mirror?



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32. When does a ray reflect along the same path from a concave mirror?



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33. When the light ray traveling parallel to principal axis falls on concave mirror, then what is the part of reflected ray?



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34. Where do you place the vessel in solar cooker?



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35. If the magnification is always less than 1 then what is the mirror?



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36. The radius of curvature of a spherical mirror is 20 cm. What is the focal length?



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37. Name mirror that can give an erect and enlarged image of an object.



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38. The focal length of convex mirror is 16 cm.

What is its radius of curvature?



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39. A concave mirror produces three times magnified real image of an object placed at 10 cm in front of it. Where is the image located ?



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40. Write any two uses of spherical mirrors.



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41. Write any two uses of convex mirror in day to day life.



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42. Which objects at your home act as spherical mirrors?



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43. What is your opinion on elevating buildings with mirror.



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44. Suggest new use with a spherical mirror.



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45. Can a convex mirror burn a paper? If not?

Why?



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46. The mirror which has a wide field of view must be



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47. Why does our image appear thin or bulged out in some mirrors ?



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48. Can we focus sunlight at a point using a mirror instead of magnifying Glass ?



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49. Are the angle of reflection and angle of incidence also equal for reflection by curved surfaces ?



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50. Are the angle of reflection and angle of incidence also equal for reflection by curved surfaces ?



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51. What is a spherical mirror? Give different types of spherical mirrors.



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52. Why does an image suffer lateral inversion?



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53. We wish to obtain an erect image of an object using a concave mirror of focal length of 15 cm. What should be range of distance of the object from the mirror ? What is the nature of the image ? Is the image larger or smaller than the object ?



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54. Predict and write the reason, why the value of distance of the object (u) is always negative

in the mirror equation.



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55. Which property of concave mirror is used in making the solar cooker?



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56. Draw the ray diagram to show the formation of image for the object of the height 1 cm. Placed at 5cm. Distance, in front

of a convex mirror having the radius of curvature $R = 5\text{cm}$.



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57. Does focal length of the spherical mirror changes when it is completely immersed in water? Predict and write the reason.



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58. A fish looks up from the water making a perpendicular angle 45° . Can the fish see the sky on the surface on water. Explain.



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59. The focal length of a huge concave mirror is 120 cm. A man is standing in front of it at a distance of 40cm. What are the characteristics of his image in that mirror?



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60. There is an object in front of convex mirror at a distance of 5 cm. If its focal length is 10 cm then

What is the image distance ?



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61. There is an object in front of convex mirror at a distance of 5 cm. If its focal length is 10 cm then

What is its magnification ?



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62. Write any two uses of convex mirror in day to day life.



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63. Which objects at your home act as spherical mirrors?



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64. Suggest new use with a spherical mirror.



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65. Write about different points related to mirrors.



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66. Why does an image suffer lateral inversion?





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67. List of the four properties of the image formed by a convex mirror



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68. The magnification of the image by the concave mirror is -1 . Mention the four characteristics of image from the above information.



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69. Why periscopes are in 'Z' shape? Why not in other shapes? Make a guess.



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70. State the laws of reflection of light.



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71. How do you appreciate the role of spherical mirrors in our daily life ?



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72. How do you appreciate the use of reflection of light by a concave mirror in making of TV antenna dishes?



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73. Discuss the merits and demerits of using mirrors in building elevation.



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74. Focal length of a concave mirror is f . The distance from its focal point to the object is P . Find the ratio of heights of image.



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75. In the following cases calculate the magnification values for a concave mirror. Give reason.

When the object is at the focal point of the mirror.



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76. In the following cases calculate the magnification values for a concave mirror. Give reason.

When the object is at the focal point of the mirror.



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77. You are given three mirrors of equal size—concave, convex and plane. How will you identify them without touching their surfaces?



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Example

1. An object 4cm in size, is placed at 25cm in front of a concave mirror of focal length 15cm. At what distance from the mirror should a screen be placed in order to obtain a sharp image? Find the nature and the size of the image.



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