

# Nature and Sources of Light, Images in Converging and Diverging Mirrors

SNC2DE\_2016-2017

## Multiple Choice

1. What must happen for light to be emitted?
  - a. Atoms must gain energy
  - b. Atoms must be excited
  - c. Atoms must lose energy
  - d. a, b and c
2. How is light transmitted?
  - a. In the form of electromagnetic waves
  - b. in straight lines
  - c. as energy
  - d. all of the above
3. How efficient at producing light energy are incandescent light ?  
A. 95 ?                      B. 5                      C. 10                      D. 85
4. What type of image is produced by a plane mirror?
  - a. A plane mirror always produces a virtual image.
  - B. A plane mirror sometimes produces a real image
  - C. A plane mirror always produces a real image
  - D. A plane mirror sometimes produces a virtual image.
5. What is true about the image distance for a plane mirror?
  - a. It is negative
  - b. It is positive
  - c. It is zero
  - d. It is infinite
6. What is the line called that is perpendicular to a reflecting surface?
  - a. Incident ray
  - b. reflected ray
  - c. normal
  - d. principal axis
7. What is the angle of reflection?
  - a. The angle between the incident ray and the reflected ray.
  - b. The angle between the normal and the reflected ray.
  - c. The angle between the incident ray and the normal
  - d. The angle between the incident ray and the surface.

8. Why is the image in a plane mirror called virtual?
- The image is imaginary
  - The image is formed by real intersection of light rays
  - The light rays appear to intersect behind the mirror
  - A and C
9. An object is beyond the centre of curvature of a converging mirror. What is true about its image?
- It is between the focal length and the vertex
  - It is at the focal point
  - It is between the centre of curvature and the focal point
  - It is beyond the centre of curvature.
10. To see your face upright and magnified in a converging shaving mirror, where should your face be?
- Beyond the centre of curvature
  - at the centre of curvature
  - at the focal point
  - between the mirror and the focal point.
11. If the magnification for an image in a converging mirror is negative, what is true about the image?
- The image is upright
  - The image is inverted
  - The image is real
  - b and c
  - a and c
12. In which applications are diverging mirrors used?
- Shaving mirrors
  - Security mirrors
  - Side mirrors on some vehicles
  - b and c

**ANSWERS: Multiple Choice**

- d
- d
- B
- A
- A
- C
- B
- D
- C
- D
- D
- D
- D

## Written Problems

1. What is luminescence? Name three types of luminescence.
2. Define: i. Wavelength, ii. frequency
3. What are electromagnetic waves?
4. Name two uses of fluorescence.
5. Define ray
6. What is a medium?
7. What are the two laws of reflection?
8. What are the characteristics of an image formed in a plane mirror?
9. When a converging mirror produces an image that has a negative distance, what is true about the image?
10. a. Complete a ray diagram for a converging mirror which has a focal length of 10 cm and an object of 5 cm height is placed at a distance of 15 cm.  
b. What is the image distance?  
c. What is the height of the image?  
d. What is the magnification?  
e. What are the characteristics of the image?
11. Why is the image distance always negative for a diverging mirror?
12. Why is the magnification for a diverging mirror always positive and less than 1?
13. A virtual image is produced by a diverging mirror that is 1.60 cm from the mirror. If the magnification is 0.20, how far from the mirror is the object?
14. A converging mirror produces an image that is 30.0 cm high from an object that is 6.0 cm high. What is the magnification of the mirror?
15. An insect is magnified 12 times by a converging mirror. If the image is real, inverted and 4 cm from the mirror, how far away is the insect?