

CHAPTER 5. (LIGHT- REFRACTION) (BASED ON NCERT PATTERN)

Q.1. Draw a diagram and determine the nature and focal length of a spherical lens which forms three times magnified real image of an object placed 16 cm from the lens.

Answer.

- According to question,
 $u = -16 \text{ cm}$, $m = -3$
(real image)

$$\begin{aligned} \text{But } m &= \frac{v}{u} \\ &= -3 \\ \Rightarrow v &= -3u \\ &= -3 \times (-16) \\ &= 48 \text{ cm.} \end{aligned}$$

So, focal length of the given spherical lens is 12 cm. The positive sign of focal length shows that the nature of spherical lens is convex.

Ray diagram:

