

Focal Length of a Convex Lens Using General Law



General Aim

Determination of focal length and the power of lens.

Method

General method

Learning Objectives (ILOs)

- Understand the image formation for a convex lens.
- Understanding the difference between both the focal length and power of a lens and how to determine them.

Theoretical Background/Context

Rays coming from very far away are practically parallel. If such rays are also parallel to the main axis of the lens, the **image** forms at f , the focal point of the lens will be real and inverted.

General method implies, the relation between the object distance p , the image distance q , and the focal length f is given by the thin lens formula as

$$f = \frac{pq}{p + q}$$

And the power of this lens will be obtained from

$$F = \frac{100}{f} = X + Y = \frac{100}{p} + \frac{100}{q}$$

Principle of Work

Finding the focal length and the power of the lens through changing the distance between screen lens according to the distance between object and lens.