

EXPERIMENT NO. - 3OBJECT OF THE EXPERIMENT

→ To determine the focal length of a convex lens using a plane mirror and a pin with a retort stand.

APPARATUS.

- 1) A retort stand
-) a plane mirror
-) a convex lens
-) a pin
-) a plumb line

THEORY

→ Light rays incident from the object pin kept at focus of a convex lens, after refraction from the lens become parallel to the principle axis and then fall normally on the plane mirror. They get refracted back along the same path from the plane mirror and then on refraction through the lens again, they retrace their path to form the inverted image of the object pin on the object pin itself. The distance of object pin from the convex lens then is equal to the focal length of the convex lens.

CONT'D.

OBSERVATIONS:-

No. of observations	x_1	x_2	$f = \frac{x_1 + x_2}{2}$
1	19.4	20.2	19.3
2	17.1	18.1	17.6
3	19.3	20.4	18.83
4	18.15	19.0	18.75
5	17.9	18.9	18.40

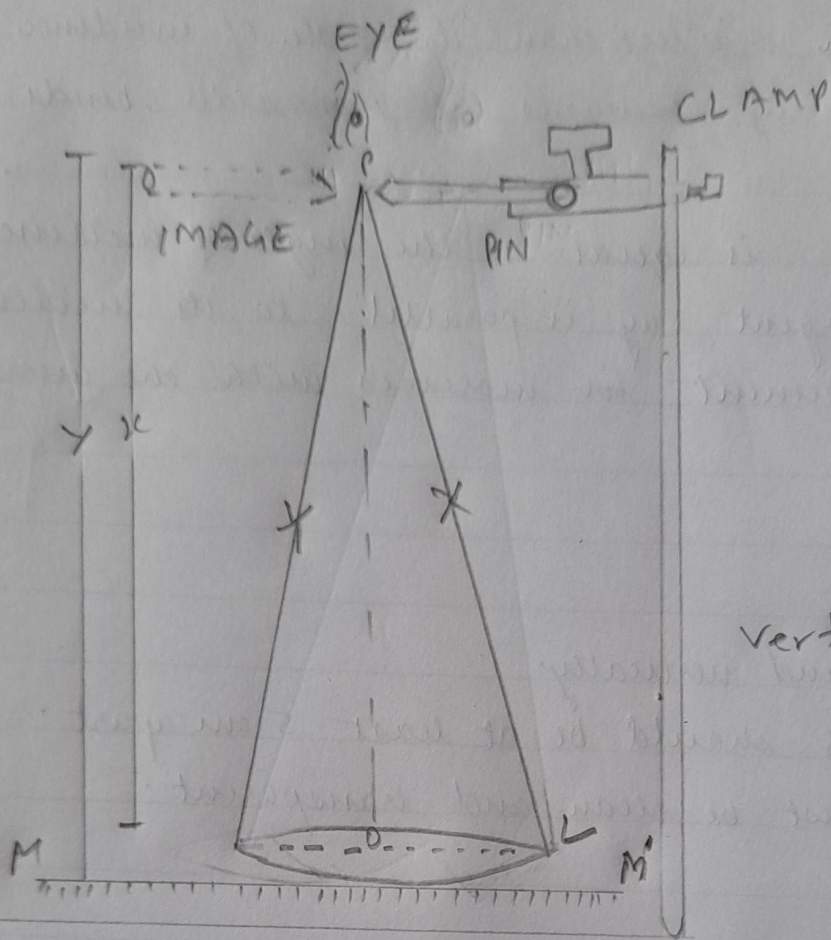
Mean value of $f = \underline{18.512}$

RESULT:-

The focal length of the given convex lens $f = \underline{18.51}$ cm.

PRECAUTIONS:-

1. The lens should be thin.
2. The tip of the pin should be exactly above the optical centre of the lens.
3. There should be no parallax between the tip of the pin and its image, when the distance of the pin is measured.



vertical stand