

Experiment No:

Date:

Convex Lens

Aim:

To find the Focal Length of the Convex Lens and hence to find its Power.

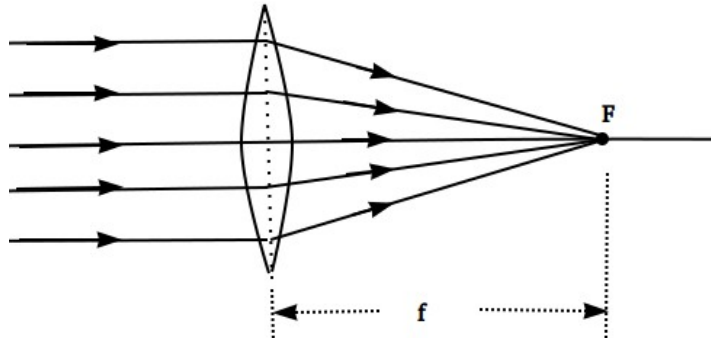
Apparatus:

Convex lens, Screen, Illuminated wire Gauze, Stand, metre scale etc.

Principle:

1. The distance object method:

If the object is placed in **infinity**, the distance between the lens and the screen is the **focal length**

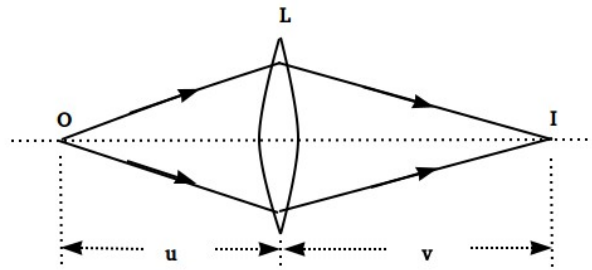


2. u - v method:

The focal length

$$f = \frac{uv}{u+v}$$

where **u** is the object distance and **v** is the image distance

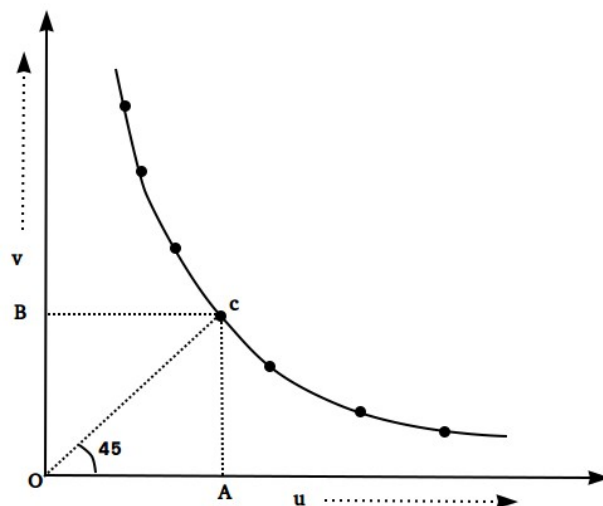


3. from u - v graph:

The focal length

$$f = \frac{OA+OB}{4}$$

where **OA** and **OB** are the coordinates at the point where **u = v**

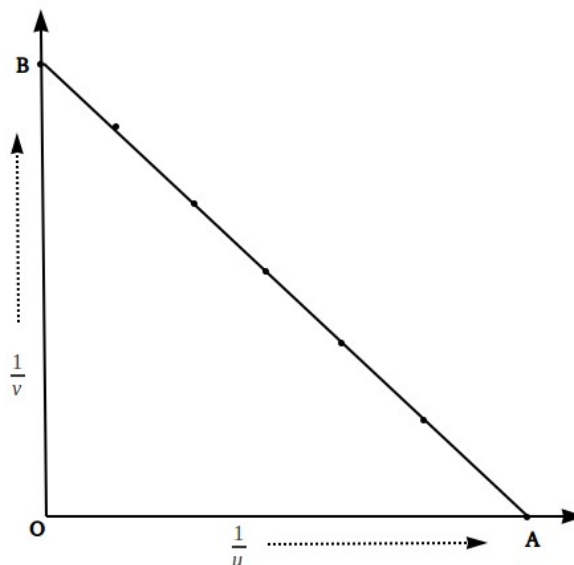


4. From $\frac{1}{u} - \frac{1}{v}$ graph:

The focal length

$$f = \frac{2}{OA+OB}$$

where OA and OB are the **intercepts** at X – axis and Y – axis.



Observations:

1. Distance Object Method:

f1 =	cm	f2 =	cm	f3 =	cm	Mean f =	cm =	m
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2. u – v method

Trial No	Object Distance (u) cm	Image Distance (v) cm	$\frac{1}{u}$	$\frac{1}{v}$	$f = \frac{uv}{u+v}$	Mean f
1						
2						
3						
4						
5						
6						

Calculations:

From u – v graph: $f = \frac{OA+OB}{4} =$

From $\frac{1}{u} - \frac{1}{v}$ graph: $f = \frac{2}{OA+OB} =$

Mean f = = cm = m

Power p = $\frac{1}{f} = =$ D

Results:

- Focal length of the given Convex Lens from u-v method = m
- Focal length of the given Convex Lens from u-v graph = m
- Focal length of the given Convex Lens from $\frac{1}{u} - \frac{1}{v}$ graph = m
- Focal length of the given Convex Lens from distant object method = m
- Power of the given Convex Lens = D