

Name _____

Basic Thin Lens Optics

1. Measure the focal length of the three lenses provided.

Large diameter lens $f =$ _____

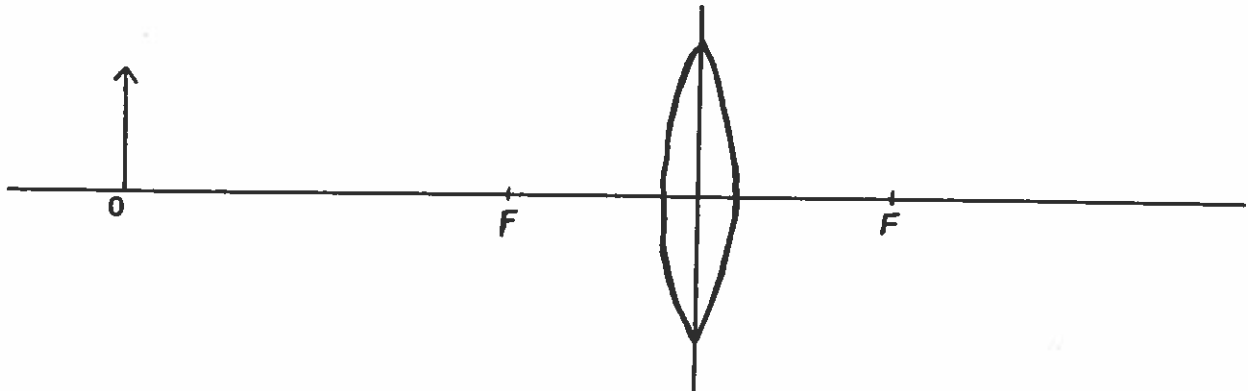
Thickest lens $f =$ _____

Small thin lens $f =$ _____

2. Use the lens with a focal length of 10 to 20 cm for the following procedure.

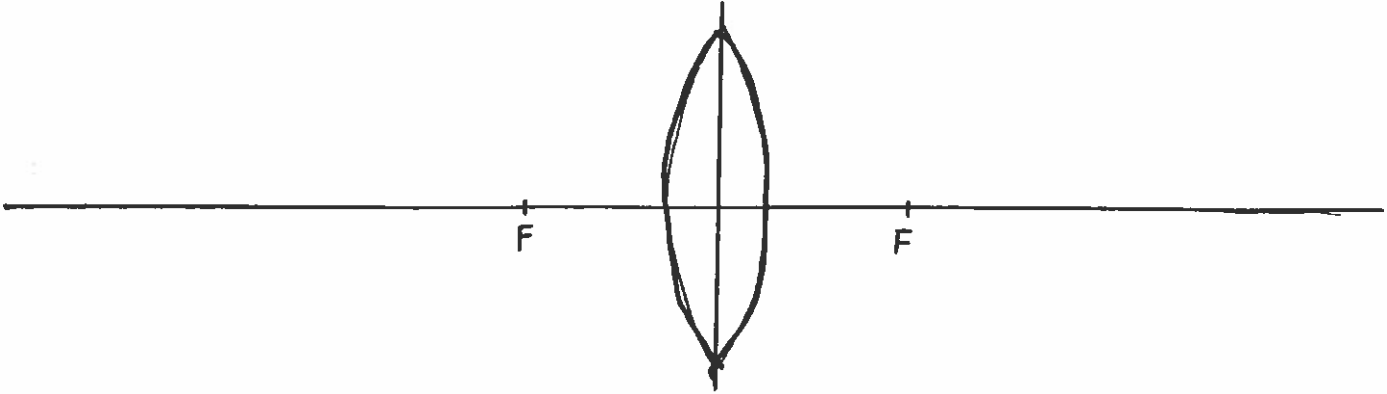
Start with the illuminated object a distance of 6 times the lens focal length and observe what happens to the image distance and size as the object is moved toward the lens. Complete the table provided.

3. Draw a ray diagram which locates the image when the object distance is $3f$.



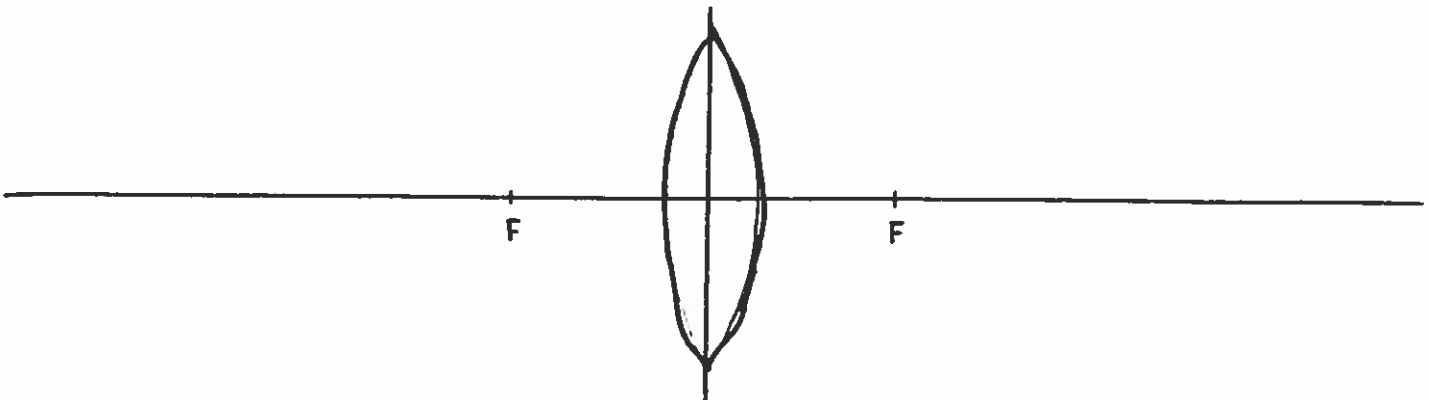
4. If the object is at F , where will the image be?

Draw the ray diagram for this case.



5. If the object distance approaches infinity, where will the image be?

Draw the ray diagram for this case.



Object size (h_o) = _____

Lens Focal length (f) = _____

Object - to - lens distance O (cm)	Lens - to - image distance i (cm)	Image size (h_i) (if upside down, $h_i < 0$) (cm)	Linear magnification use $M = h_i/h_o$	Predicted i use $1/i = 1/f - 1/o$ (cm)	Predicted M use $M = -i/o$
$6f =$					
$4f =$					
$2f =$					
See Below					
$f =$					

Use paper to block half the lens. Describe what happened to the image:

