# GNSC 1110L LAB PRE-TEST QUESTIONS
CONVEX LENS LAB

1. State the objective of this experiment.

2. In the lens equation, $1/d_o + 1/d_i = 1/f$, what are d_o , d_i , and f?

3. In the case of object being very far away from the convex lens, how would you find the focal length? Support your answer with the lens equation and a ray diagram.

4. Use lens equation to find the focal length of a lens if the object distance is 25.0 cm and the image distance is 15.0 cm.

5. In the magnification equation, $M = - d_i /d_o$, what does the negative sign stand for if both d_o and d_i are positive for a real object and a real image?

6. If the object distance is 25.0 cm and the image distance is 15.0 cm, what is the magnification of the lens? Describe the image.

7. If the object distance is 12.5 cm and the image distance is 37.2 cm, what is the magnification of the lens? Describe the image.

8. How can you observe a virtual, erect, and enlarged image formed by a convex lens?

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<u>Answers</u>
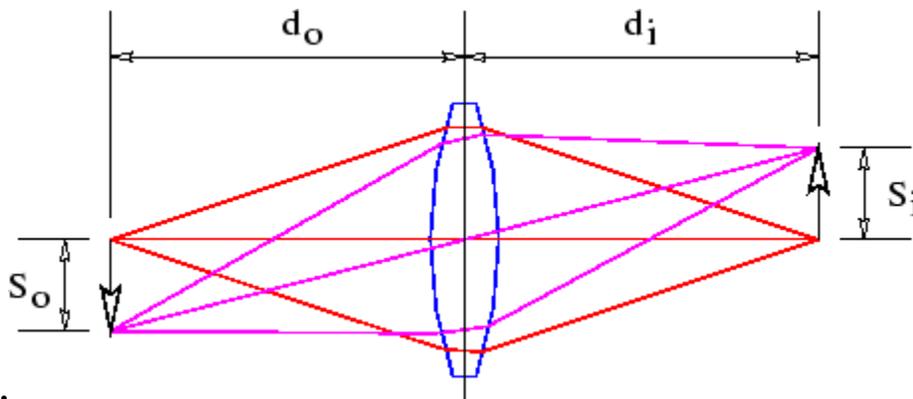
2.

do is the distance from the object to the lens. di is the distance from the image

formed on the screen to the lens. So: object size. Si: image size.

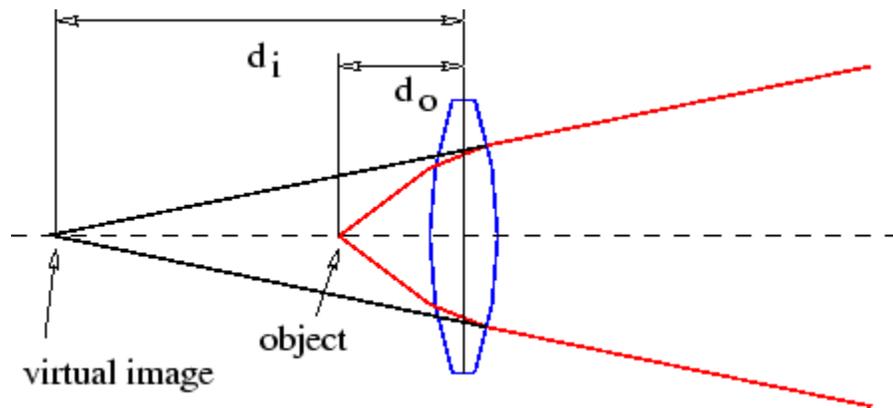**3. See also step 1 of procedure.**

4. 1/f = 1/15.0 cm + 1/25.0 cm

f = 9.38 cm

5. It means the image is inverted.

6. M = -(15.0 cm/25.0 cm) = -0.600; the image is real, inverted, and reduced in size.

7. M = -(37.2 cm/12.5 cm) = -2.98; the image is real, inverted, and enlarged.

8. See step 6 of procedure and figure below.

Note: do < f
 Below are pictures of real un-mounted lenses used in real optical devices.