MAD LAB (quickie lab) (10 pts)

Purpose: Check out all six cases for a converging lens. (get out your lens diagram paper before starting)

Procedure:

1). While in a hallway with a lens, ruler (cm), and white sheet of paper (screen); have light from the windows in the distance (10 m or more) go through the lens onto the screen and move the lens toward and away from the screen until you can focus the upside down image of the windows onto the screen. Measure this distance as f (the focal length of your lens). f = _____ cm

2). Inside for all the rest of this lab. {Case 3} So if in Case 1 you had 5 cm (for instance) for the focal length, 2f would be 10 cm, so putting the lens at 50 cm on the metric stick (makes for easy measuring from the lens on both sides of the lens for s_i and s_o) place the light (the object) at 40 cm and the screen at 60 cm and see if the image is focused (it should be), if not focused play with both the image and object distances until they are equal (now your focal length would be half this 2F distance)

f = _________ cm (we will use this as the actual focal length for % error later)

3). {Cases 2 & 4}

Now place the object (light) for Case 2 and measure s_o and find the image and measure s_i and place in the table below. Calculate f using the MAD formula showing calculation and place result in data table. Next calculate your % error showing calculation and place result in the data table. Repeat for case 4.

4). {Case 6} Note: What do you have to do to see the virtual image for case 6?

5). {Case 5} Note: For case 5 your image distance in the lab was _______ cm

DATA TABLE

CASE 2					CASE 4			
S_o (cm)	S_i (cm)	f (cm)	%		S_o (cm)	S_i (cm)	f (cm)	%

Conclusion: