Concave Mirror Lab: Make Up Data

You are asked to find the focal length of a mirror. You set up the lab as noted on the instructions. You perform the lab and collect the following data:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Do (cm) | Di (cm) | Ho (cm) | Hi (cm) |
| Do=2.5 ft. | 76.2 | 25.3 | 8.4 | 17.3 |
| Do=1.5ft. | 45.72 | 34.0 | 8.4 | 22.0 |
| Do=1ft. | 30.48 | 52.7 | 8.4 | 27.7 |
| Do=0.5ft. | 15.24 | NA | 8.4 | NA |

Analysis:

1) Calculate the focal point for each trial.

2) Calculate the average focal point.

3) Using your formulas, calculate Di and Hi for Do=15.24cm.

4) The actual focal point is 20cm. Calculate the percent error.

5) Draw a ray diagram for the 3rd and 4th trials.

Do=1ft.

Do=0.5ft.

Questions:

1) Why could you not measure the image distance for the 4th trial?

2) What generalizations can you make about the location of an object and its image?