

PHYS 145 Modern Physics

Assignment 2

Due: Friday 01/29/10 at 10:10am

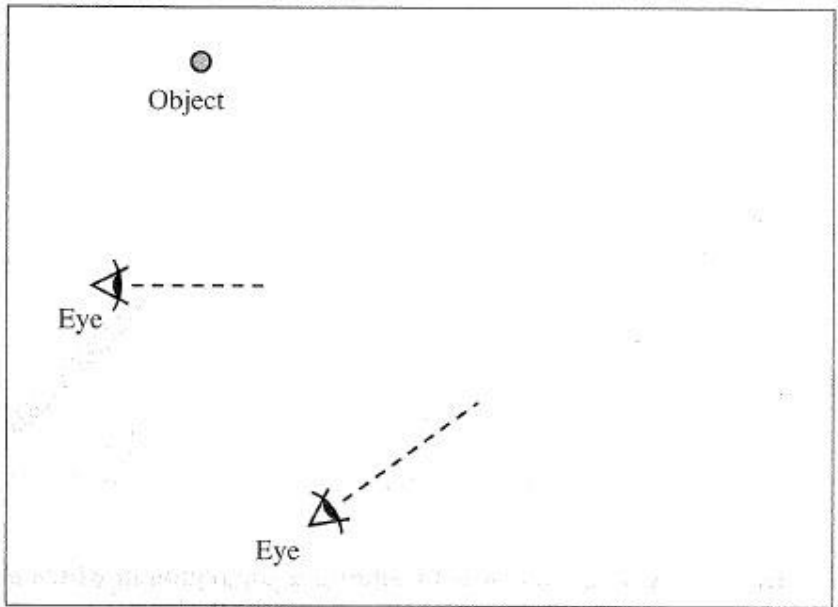
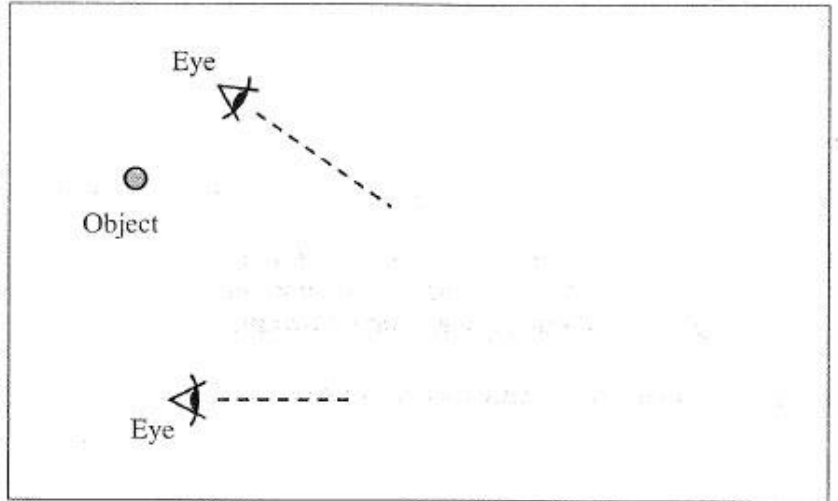
1. **Read** Ch. 33.5 (pg 1133) , ch. 34.1-3 (pg. 1157-1174)
2. Complete MP 2 (Mastering Physics)
3. Turn in the following **problems** on paper (on the NEXT page, scroll down).

Note: you will need a *straightedge* and a *protractor* for this homework.

1. The top view diagrams at right were drawn by a student who is studying image formation by a plane mirror. Each diagram shows the location of an object and two lines of sight to the image of that object in the mirror.

For each diagram, determine whether or not the situation illustrated is possible. If a situation is possible, draw the location and orientation of the mirror.

Explain how you reached your conclusions.



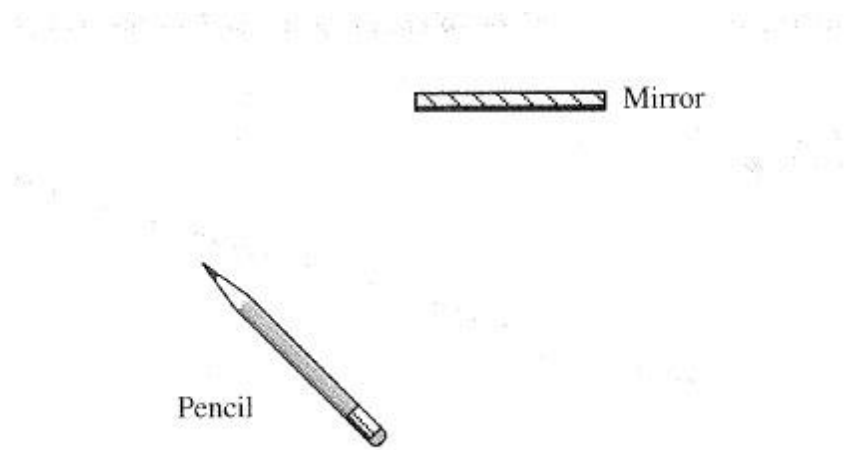
2. Two small objects and a mirror are arranged as shown below.
 a. Draw a ray diagram to determine the location of the image of each of the two objects.



b. Describe how you could use a ray diagram to determine the location of the image of an extended object, such as a pencil.

3. A pencil is placed in front of a plane mirror as shown in the top view diagram below.
a. Use ray tracing to determine the location of the image of the pencil. Use a protractor and a straightedge to make an accurate drawing.

Clearly indicate the entire image on your diagram.



b. Draw a ray diagram below to determine the region in which an observer must be located to see (i) the image of the tip of the pencil, (ii) the image of the eraser, and (iii) the image of the entire pencil. Clearly label each region on your diagram. Explain your reasoning.

