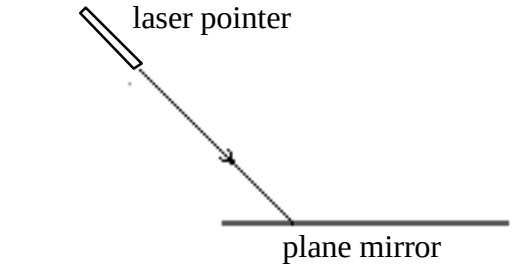
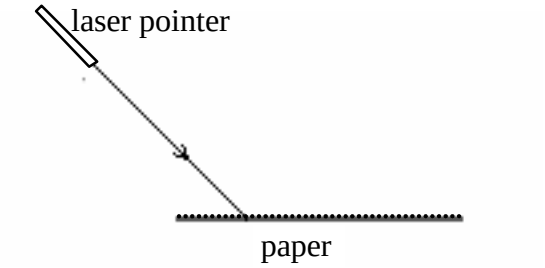
Name **Date** **Pd**

Reflection & Plane Mirrors WS 1

1. a. Draw the reflected light ray(s) and position the observer's eye where it can see the reflected ray.

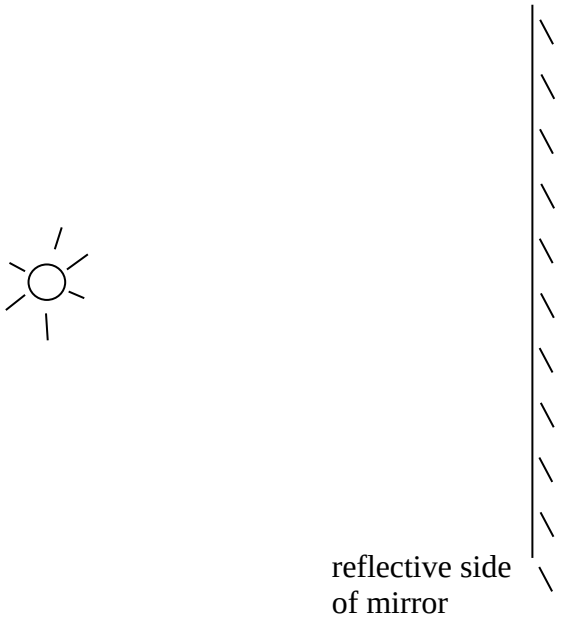




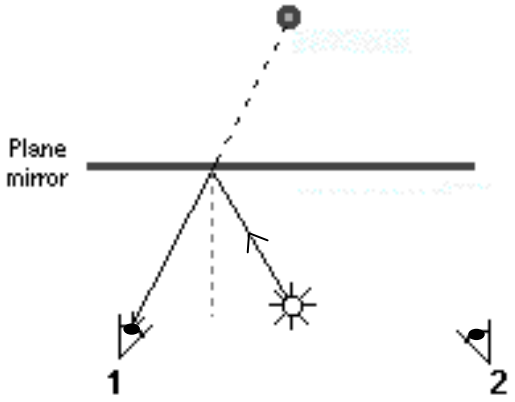
b. Explain why many observers can see the rays reflected from the paper.

c. Why should you **not** try this with a laser, a mirror and your eye?

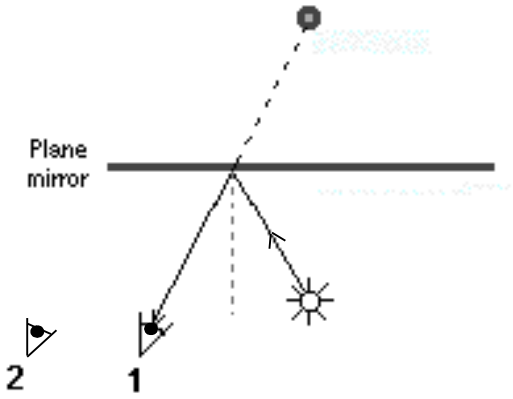
2. A bulb is placed in front of a plane mirror.
   a. Use a protractor to sketch six rays that travel from the bulb to the mirror and reflect. Include eyes at positions that could see the reflected rays.
   b. Extend the reflected rays with dotted lines *behind the mirror* to locate the virtual image.
   c. Measure and compare the image distance to the object distance.



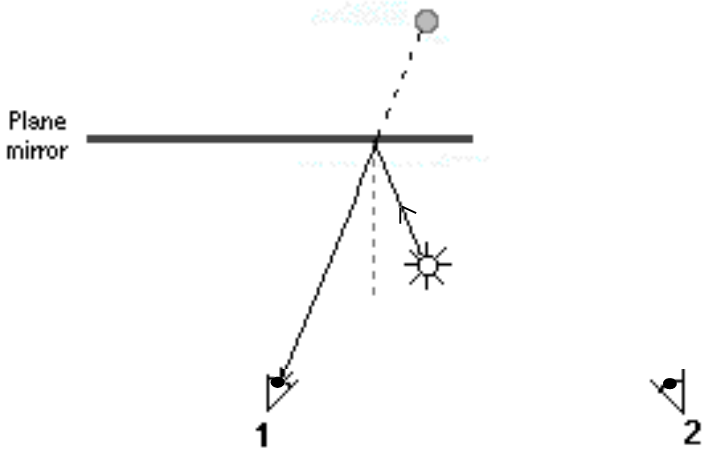
3. The ray diagram below shows where observer #1 sees the virtual image of the bulb. Show where, if at all, observer #2 sees the virtual image.



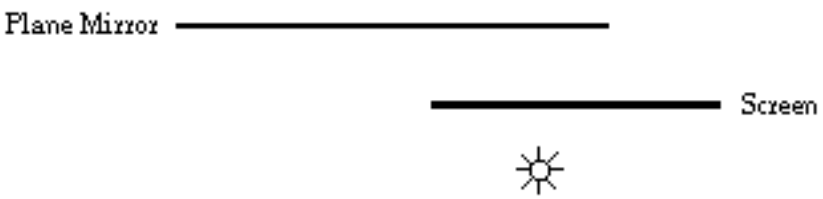
4. The ray diagram below shows where observer #1 sees the virtual image of the bulb. Show where, if at all, observer #2 sees the virtual image.



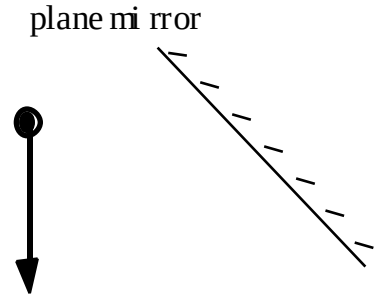
5. The diagram below shows where observer #1 sees the virtual image of the bulb. Show where, if at all, observer #2 sees the virtual image.



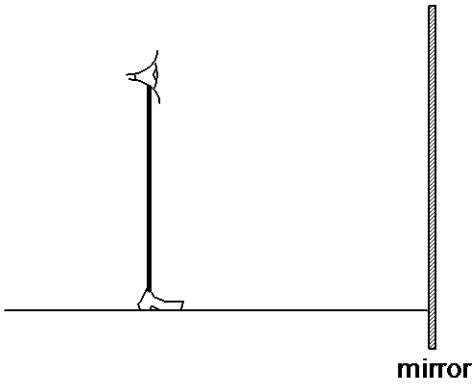
6. A top view of a mirror and bulb is shown below. This time, an opaque screen is placed between the bulb and the mirror. Does an image still form? If yes, show the location of the observer and the image. If no, explain why not. In either case, use a ray diagram to support your argument.



7. A top view of a mirror and an arrow is shown below.
   a. Locate and sketch the image of the arrow.
   b. Position an observer's eye where the whole image could be seen.
   c. Draw a ray diagram that shows how light from both ends of the arrow reach the observer.



8. How does the size of the smallest mirror you would need to see your entire body at one time compare to your height? Make a ray diagram to prove it. Mr. Eye-foot represents a simplified body.



9. Would the length of the mirror needed to see your entire body change if you moved farther away from the mirror? Draw a ray diagram to support your answer.