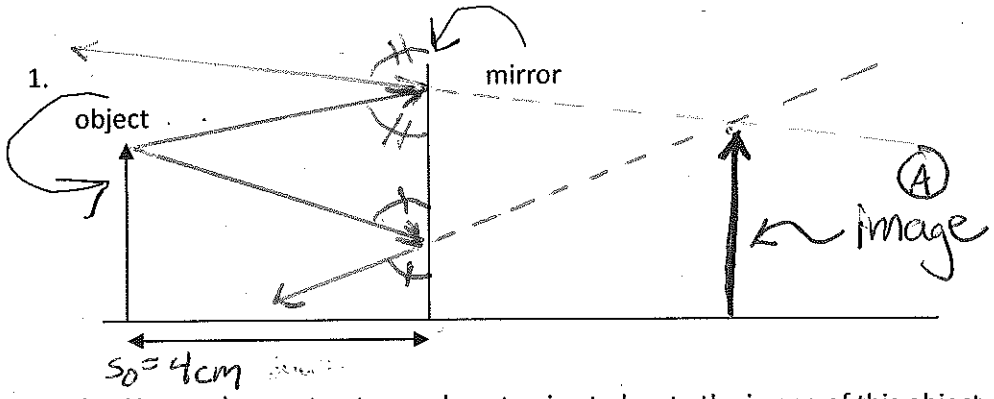
Reflections and Ray Tracing

1.



A. Use a ruler, protractor, and ray tracing to locate the image of this object.

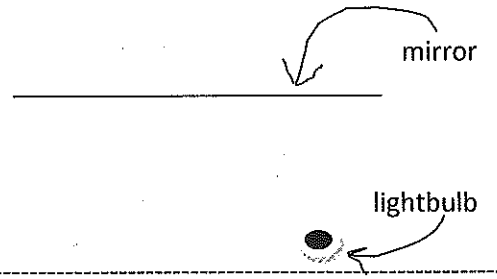
B. Use your ruler to determine the image distance. $s_i = -4$ cm

C. Write a mathematical expression relating object distance, s_o, to image distance, s_i, for plane mirrors. Describe how you could use this expression to locate images formed by plane mirrors without doing any ray tracing. $s_o = |s_i|$ For a plane mirror, the image can be drawn exactly as far behind the mirror as the object is in front of the mirror with the same height as the object.

2. Below we have a top-view of a mirror with a light bulb placed near it.

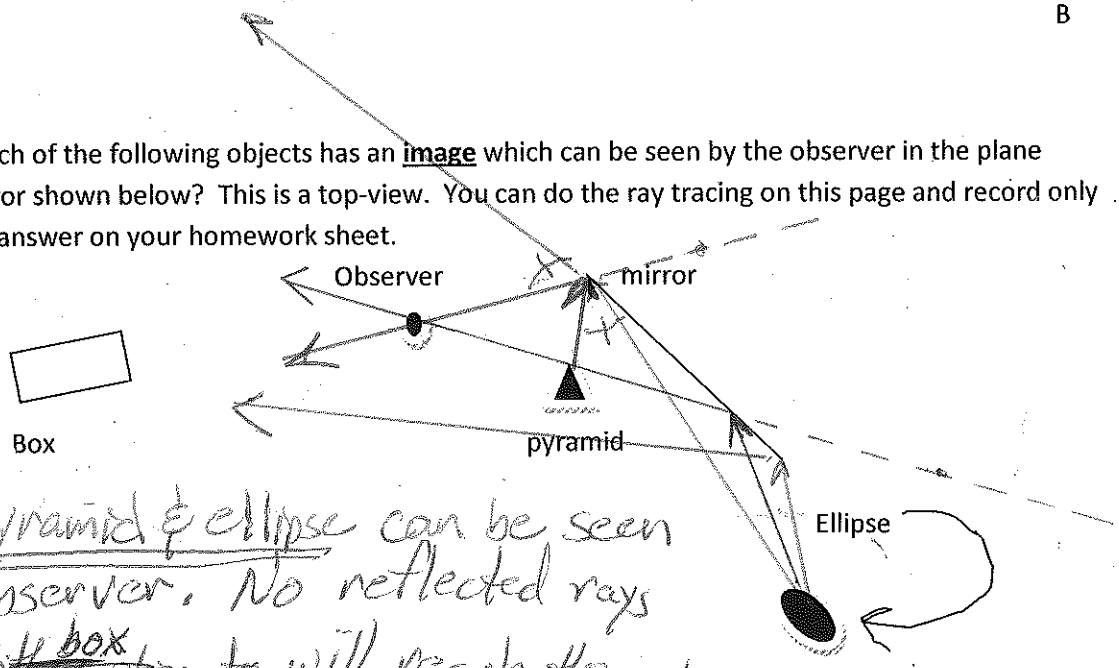
A. Use a ruler, protractor, and ray tracing to locate the image of this object.

B. Shade all the spots along the dashed line AB where you could stand and see the image of the object in the mirror.



A B

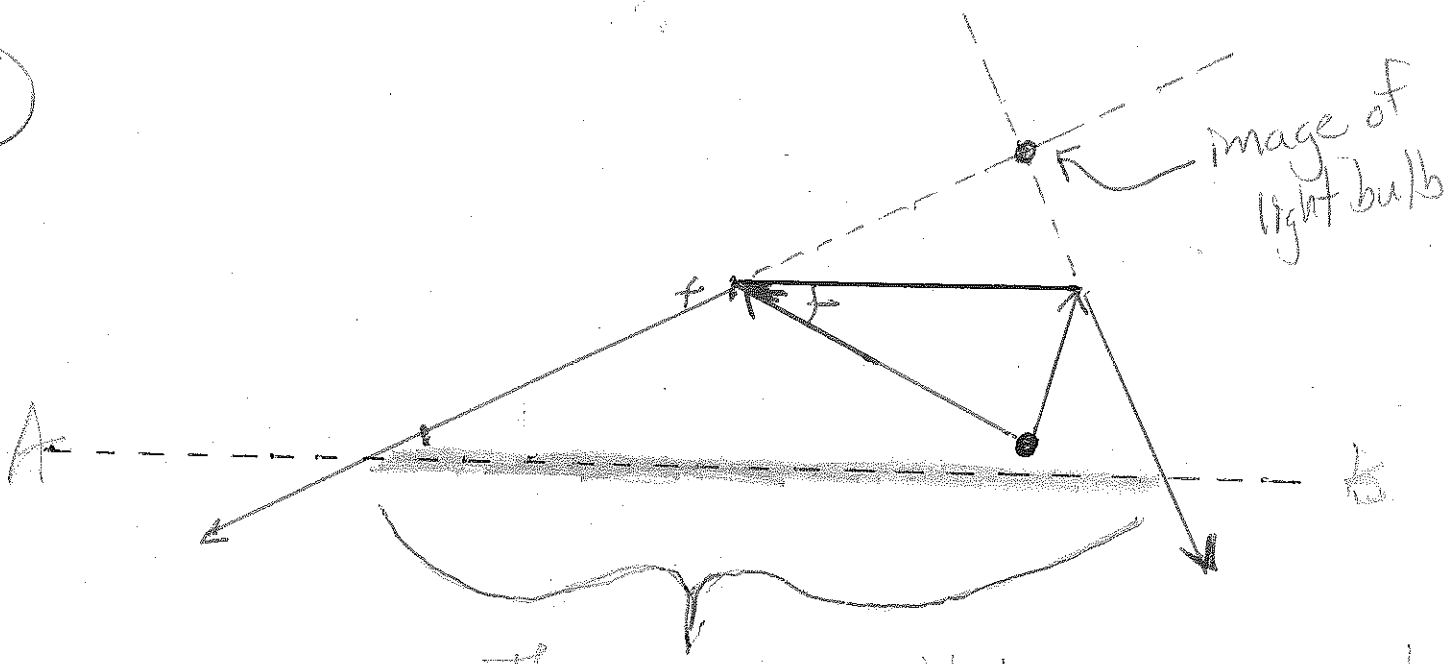
3. Which of the following objects has an **image** which can be seen by the observer in the plane mirror shown below? This is a top-view. You can do the ray tracing on this page and record only the answer on your homework sheet.



Only the pyramid & ellipse can be seen by the observer. No reflected rays from the ~~object~~ box will reach the observer.

Reflections & Ray Tracing

(2)



The image could be seen anywhere in here. All you need to see the image is for reflected rays (2) to hit your eye. Notice I've gotten the full range of places where reflected rays hit the line AB because I drew my incident rays reflecting off the extreme left & right edges of the mirror.