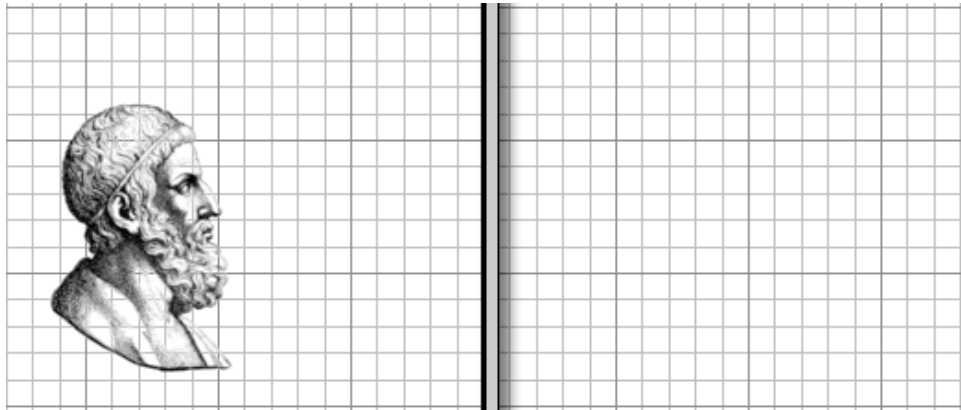
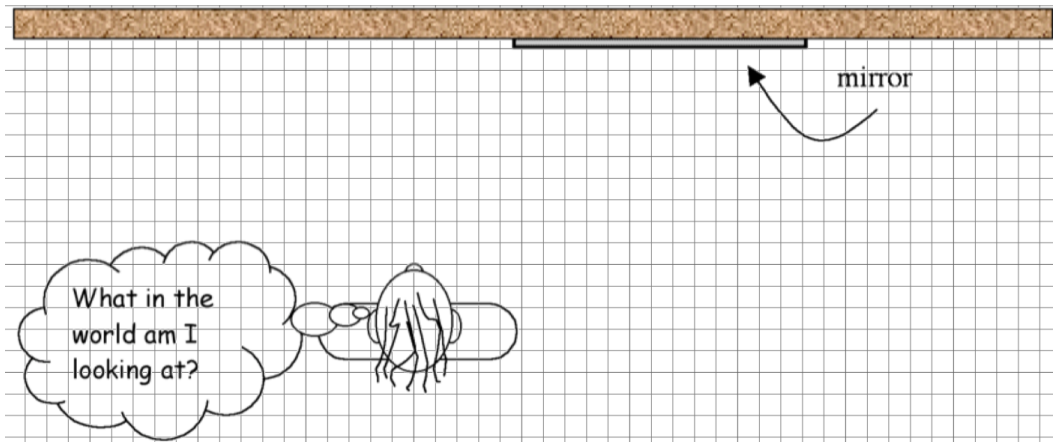


1. Archimedes, not having understood Narcissus, looks at himself in a flat mirror, the 3rd Century BC version of a selfie. We see him and the mirror from the side. Where is the image of the tip of his nose? Carefully and accurately use a straight edge to draw at least two rays from the tip of his nose and their reflections to justify your claim.

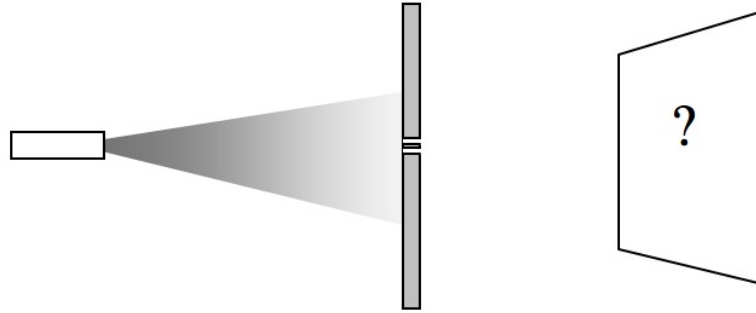


2. The person depicted from a top view below is standing to the left of a mirror on the wall. Does the mirror form an image of this person?

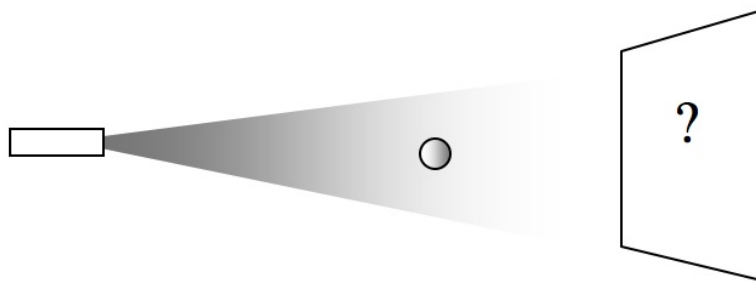


- If not, using at least 3 rays from the tip of his nose, sketch a ray diagram that indicates why there is no image.
- If so, using at least 3 rays from his nose, sketch a ray diagram that explicitly indicates the location of the image of his nose, which you can mark with a dot. Mark with an 'X' a specific location from which an observer could see the image of this person's nose.

3. Suppose you shine an expanded laser beam at a piece of aluminum foil with two holes in it. What would you expect to see on a screen behind the aluminum foil?



4. Suppose you shine an expanded laser beam at a ball bearing. What would you expect to see on a screen beyond the ball bearing?



5. Suppose you shine an expanded laser beam at a piece of aluminum foil with one hole in it. What would you expect to see on a screen behind the aluminum foil?

