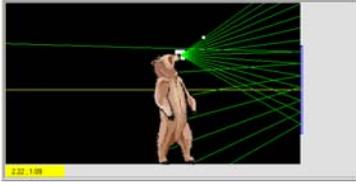


Worksheet for Exploration 33.1: Image in a Flat Mirror



A bear stands in front of a plane mirror that is hanging on a wall. A point source of light is located near the mirror. You can drag this source to any location and can change the angle of its rays by click-dragging on the hotspot (**position is given in meters and angle is given in degrees**). [Restart](#).

- a. At what point on the mirror must the bear look in order to see her feet? For simplicity and ease, assume the bear's eye is located at the tip of her nose. Hint: Place the light source on the bear's foot and adjust the rays so that one ray leaves the foot and is reflected to the tip of the bear's nose. The point where the ray is reflected is where the bear would have to look to see her foot.

It was suggested that you place the light source on the bear's foot and looked for a ray that reflected to her nose. Would you expect a different answer if instead you had placed the light source on her nose and looked for a ray that reflected to her foot? Why or why not? Try it if you are not sure.

- b. Move the bear to the position $x = 1.0$ m. If the bear looks at the same spot in the mirror found in part (a), what will she see?

Does this imply that she is able to see more, less, or the same amount of her body in the mirror when she moves away from the mirror?

