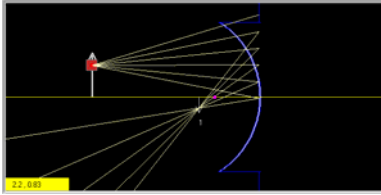


Worksheet for Exploration 33.3: Ray Diagrams



You will often use ray diagrams in order to determine where an image of an object will be, whether it will be real or virtual, and whether it will be inverted or upright. The animation shows an object arrow, a mirror, and a pink dot to show the focal point of the mirror. You can move the object using the slider (**position is given in meters**). [Restart](#).

- One point source is attached to the object in the animation. Move the object and notice where the light from the point source converges. Move the point source up and down and notice where on the image the light converges. In order to sketch a diagram of the object, in addition to the lens and the approximate position of the image, you need to know where the light from every point on the object converges. Instead of trying to draw a large number of the rays from many points on the object, we generally use three rays from the tip of the object.
- As you move the object (with the slider) or move the point source, there is a ray that always passes through the focal point. Describe that ray. This is a ray generally included in a ray diagram.
- Now switch to the "ray diagram" view. Describe the other two rays (compare them to the list in your textbook, if needed). As you move the object, describe what stays the same for each ray even when the object is in a different position and the image is changing position and size.
- Move the object to a position between the focal point and the mirror. Compare the [object with point source](#) and [ray diagram](#) views.