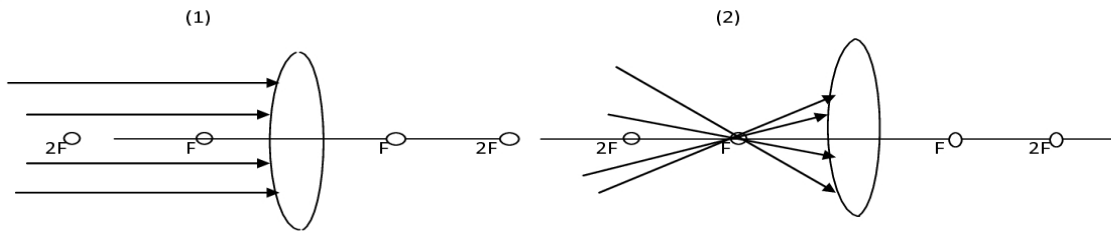


Notes—Ray Diagrams—Converging Lenses

There are **ONLY 3** rules for drawing ray diagrams for objects in **Converging Lenses**. They are:

- (1) Any incident ray traveling parallel to the principal axis of a converging lens will refract through the lens and travel through the focal point on the opposite side of the lens.
- (2) Any incident ray traveling through the focal point on the way to the lens will refract through the lens and travel parallel to the principal axis.
- (3) An incident ray that passes through the center of the lens will in effect continue in the same direction that it had when it entered the lens.

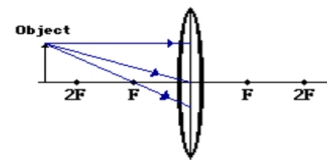


(1) Pick a point on the top of the object and draw two incident rays traveling towards the lens.

(A) First draw a line that is _____ to the _____ to the mirror.

(B) Second, draw a line that travels _____ to the mirror.

(C) Third, draw a line from the object to the _____.

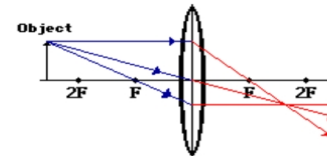


(2) Refract these rays according to the two rules of refraction for converging lenses above.

(A) The first ray refracts _____

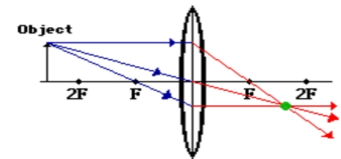
(B) The second ray refracts _____

(C) The third ray _____



(3) Mark the image of the top of the object where the rays meet.

We can simply draw in the rest of the image because all other rays emanating from the object will always reflect in such a way that all intersecting rays will form a vertical line below (or above if it is not inverted) the mark you made on the page. This means that if the object is a vertical line, the image will also be a vertical line...so we don't need to repeat the process for other extremes of the object UNLESS the object does not lie on the principle axis.



(4) Check your drawing to make sure it agrees with your prediction