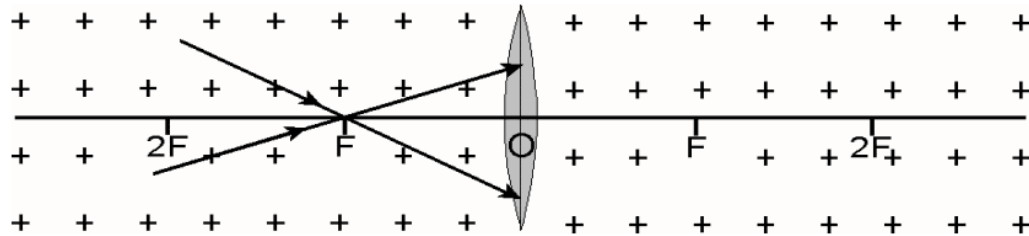


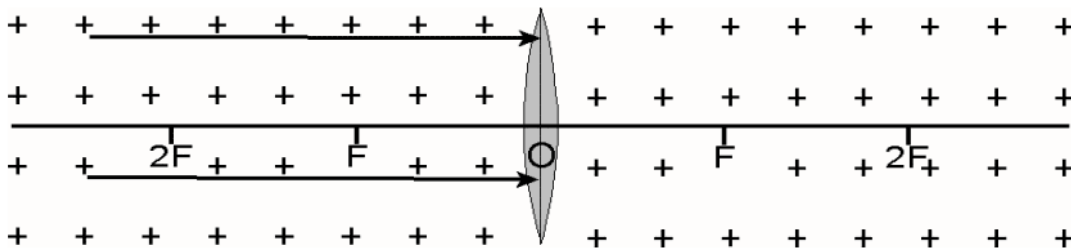
L14 Finding the Images of a Convex/Converging Lens

Complete the following:

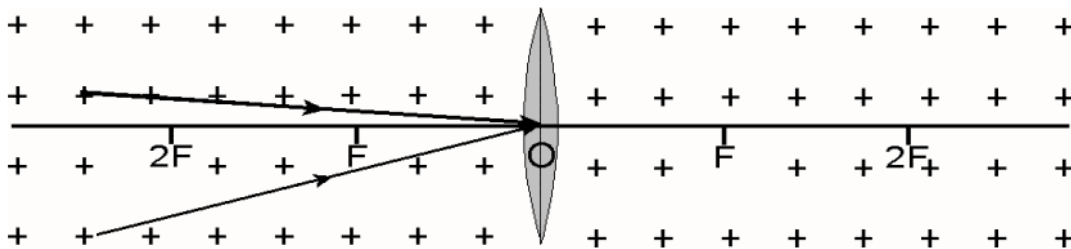
1) Any incident ray passing through the Focus will



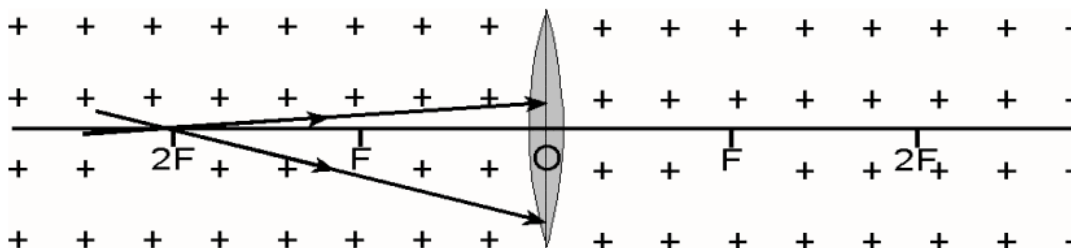
2) Any incident ray parallel to the principal axis will



3) Any incident ray passing through the Optical Centre will



Any incident ray passing through 2F will



Object Location	Images Formed by Converging Lenses Ray Diagrams	LOST
Beyond 2F	<p>A ray diagram showing a converging lens with optical center O. The principal axis has focal points F and 2F on both sides. An object (a tall arrow) is placed to the left of the lens, between the 2F and F points. The image is formed to the right of the lens, between the F and 2F points. The image is inverted and smaller than the object.</p>	<p>Location</p> <p>Orientation</p> <p>Size</p> <p>Type</p>
At 2F	<p>A ray diagram showing a converging lens with optical center O. The principal axis has focal points F and 2F on both sides. An object (a tall arrow) is placed to the left of the lens, exactly at the 2F point. The image is formed to the right of the lens, also at the 2F point. The image is inverted and the same size as the object.</p>	<p>Location</p> <p>Orientation</p> <p>Size</p> <p>Type</p>
Between F and 2F	<p>A ray diagram showing a converging lens with optical center O. The principal axis has focal points F and 2F on both sides. An object (a tall arrow) is placed to the left of the lens, between the F and 2F points. The image is formed to the right of the lens, beyond the 2F point. The image is inverted and larger than the object.</p>	<p>Location</p> <p>Orientation</p> <p>Size</p> <p>Type</p>
At F	<p>A ray diagram showing a converging lens with optical center O. The principal axis has focal points F and 2F on both sides. An object (a tall arrow) is placed to the left of the lens, exactly at the F point. The image is formed at infinity.</p>	<p>Location</p> <p>Orientation</p> <p>Size</p> <p>Type</p>
Between F and O	<p>A ray diagram showing a converging lens with optical center O. The principal axis has focal points F and 2F on both sides. An object (a tall arrow) is placed to the left of the lens, between the lens and the F point. The image is formed to the right of the lens, beyond the 2F point. The image is upright and larger than the object.</p>	<p>Location</p> <p>Orientation</p> <p>Size</p> <p>Type</p>

- 4) If the OBJECT IS MOVED far beyond twice the focal length ($2F$) of a CONVEX (CONVERGING) LENS, the image will move

- 5) If the OBJECT IS MOVED close toward the focus of a CONVEX (CONVERGING) LENS, the image will move

- 6) In order to produce a VIRTUAL IMAGE with a CONVEX (CONVERGING) LENS, the object must be placed

- 7) In order to produce a REAL IMAGE with a CONVEX (CONVERGING) LENS, the object must be placed

- 8) In order to produce an ERECT IMAGE with a CONVEX (CONVERGING) LENS, the object must be placed

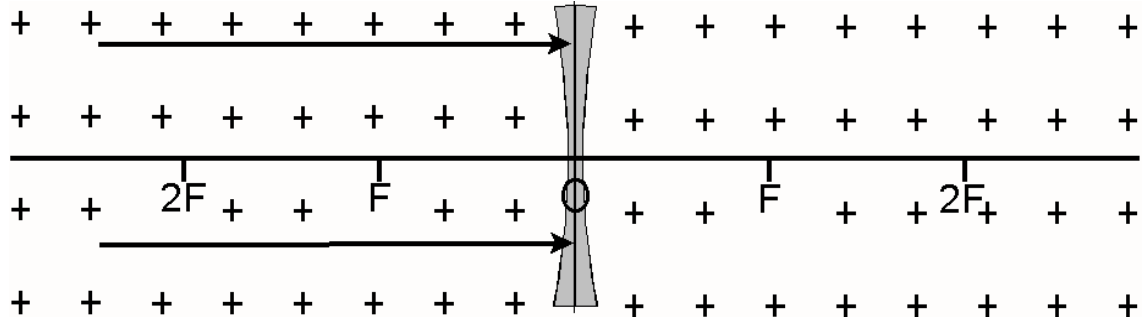
- 9) In order to produce the LARGEST IMAGE POSSIBLE with a CONVEX (CONVERGING) LENS, the object must be placed

Finding the Images of a Concave/Diverging Lens

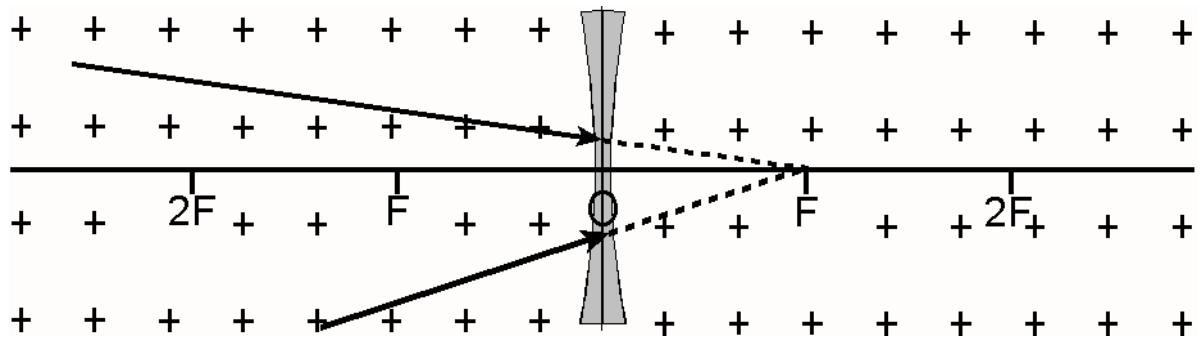
Characteristic Rays

Complete the following characteristic rays:

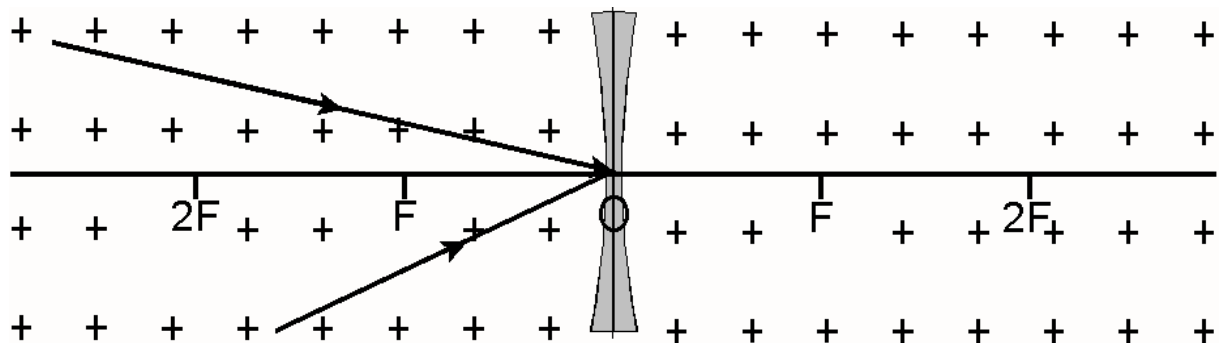
1) Any incident ray parallel to the principal axis will



2) Any incident ray moving toward the Focus will



3) Any incident ray passing through the Optical Centre will



Object Location	Images Formed by Diverging Lenses Ray Diagrams	Image Location
Beyond 2F		Location Orientation Size Type
At 2F		Location Orientation Size Type
Between F and 2F		Location Orientation Size Type

- 4) If the OBJECT IS MOVED far beyond twice the focal length (2F) of a CONCAVE (DIVERGING) LENS, the image will move
- 5) If the OBJECT IS MOVED close toward the focus of a CONCAVE (DIVERGING) LENS, the image will move
- 6) In order to produce a VIRTUAL IMAGE with a CONCAVE (DIVERGING) LENS, the object must be placed
- 7) In order to produce a REAL IMAGE with a CONCAVE (DIVERGING) LENS, the object must be placed
- 8) In order to produce the LARGEST IMAGE POSSIBLE with a CONCAVE (DIVERGING) LENS, the object must be placed