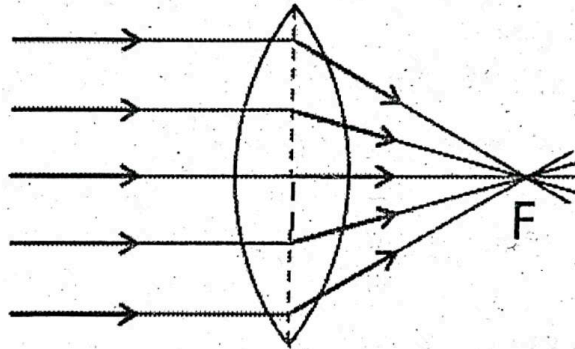


Position of object	Position of image	Nature of image		
		Real/ virtual	Inverted/erect	Magnified/ diminished / same size
1. At infinity	At F	Real	Inverted	Diminished
2. Beyond 2F	Between F and 2F	Real	Inverted	Diminished
3. At 2F	At 2F	Real	Inverted	Same size
4. Between 2F and F	Beyond 2F	Real	Inverted	Magnified
5. At F	At infinity	Real	Inverted	Very much magnified
6. Between F and lens	Same side of the object	Virtual	Erect	Magnified

Principal focus of a convex lens

Experiment:

Arrange a convex lens so that sunlight is concentrated at a point. Place a piece of cotton wool there. You can see burning of cotton.

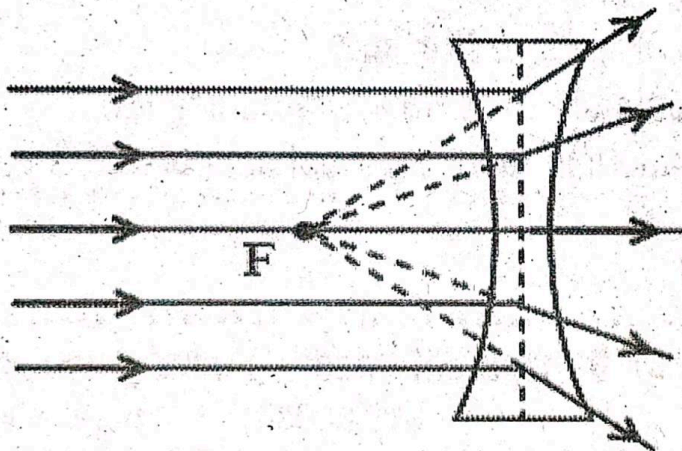


.....
Light rays incident parallel and close to the principal axis converge at a point on the principal axis of a convex lens. This point is the principal focus of a convex lens.
.....

Principal focus of a concave lens

.....
Light rays coming parallel and close to the principal axis diverge from one another after refraction. These rays appear to originate from a point on the same side. This point is the principal focus of a concave lens.
.....

Since convex and concave lenses have two transparent surfaces on either side they have two principal foci (Plural of focus).



The focus of a convex lens is real, but that of concave lens is not real, it is virtual, because the rays appear to be coming from a point.