ODM EDUCATIONAL GROUP
Changing your Tomorrow

LIGHT REFLECTION AND REFRACTION

CHAPTER NO.10

SUB: PHYSICS

LIGHT REFLECTION AND REFRACTION

Website: www.odmegroup.org
Email: info@odmps.org
Toll Free: 1800 120 2316
Sishu Vihar, Infocity Road, Patia, Bhubaneswar- 751024

POINTS TO BE COVERED

- Ray diagrams (Image formation by spherical lenses)

LEARNING OUTCOMES

- Students will be able to
- Predict the position of image for different positions of objects.
- Draw the ray diagrams.
- Solve numerical based on it.
- Trace the path of light
- Recognise and distinguish between correct and incorrect ray diagrams.

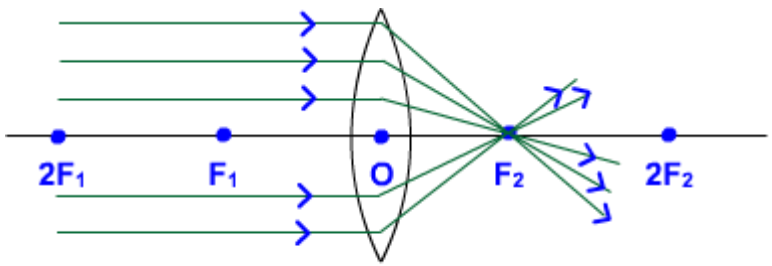
RECAPITULATION OF PREVIOUS TOPIC

- Rules for drawing ray diagrams:
- 1. when the incident ray of light is parallel to the principal axis.
- 2. When the incident ray of light passes through the focus.
- 3. When the incident ray of light passes through the optic centre.

RAY DIAGRAMS

Object at infinity:

- Convex lens converge parallel rays coming from objet at infinity and a highly diminished - point sized, real and inverted image is formed at principal focus F_2.

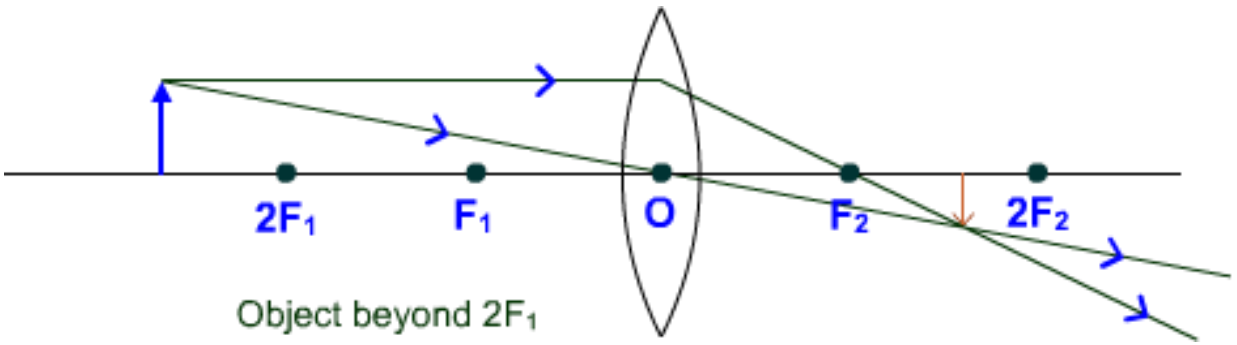


Object at infinity

Refraction of light through a lens

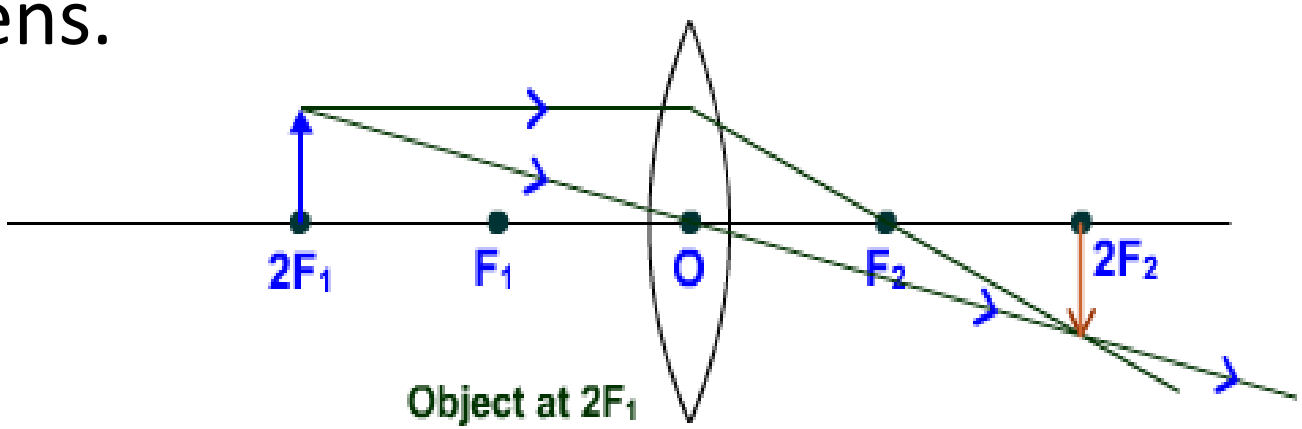
Object beyond 2F:

- A diminished, real and inverted image is formed between principal focus, F_2 and centre of curvature, C_2 at the opposite side when an object is placed beyond C_1 of a convex lens.



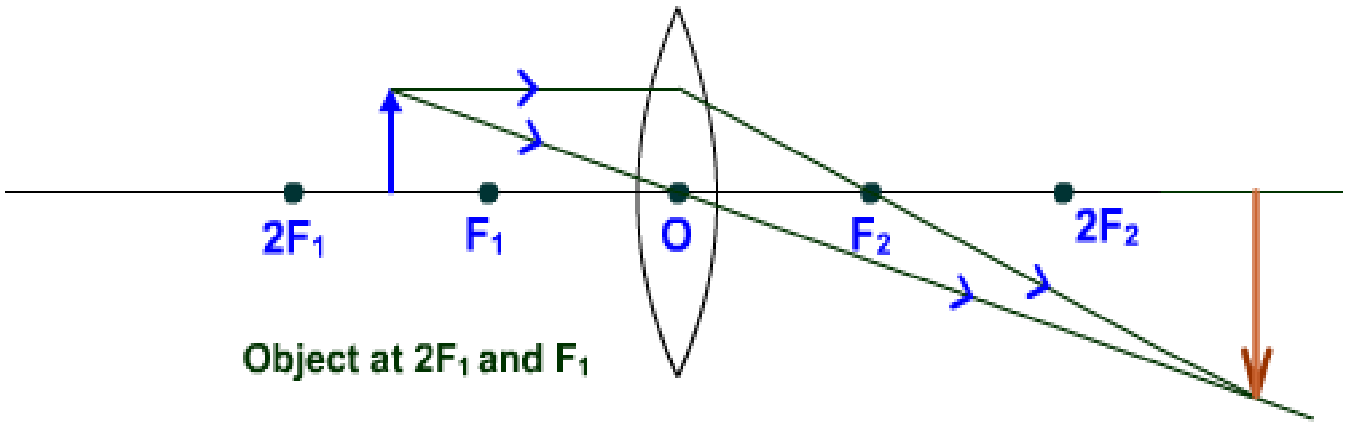
Different parts of spherical lens

- **<u>Object at centre of curvature, C_1 or $2F_1$:</u>**
- A same sized, real and inverted image is formed at centre of curvature, C_2 when object is placed at centre of curvature, C_1 of a convex lens.

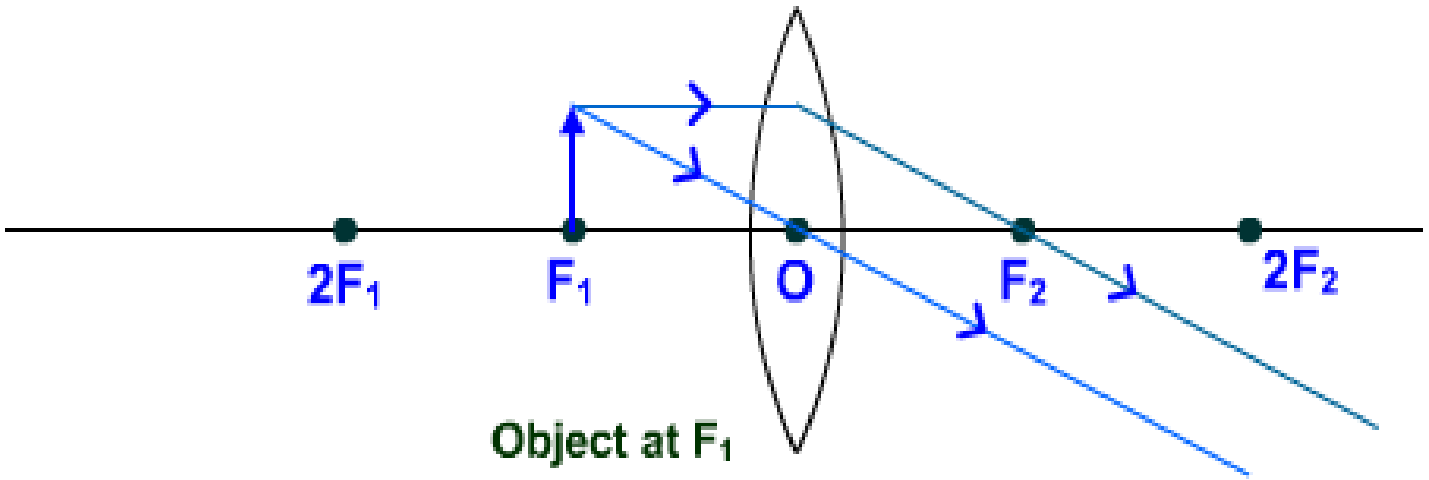


RULES FOR DRAWING RAY DIAGRAMS

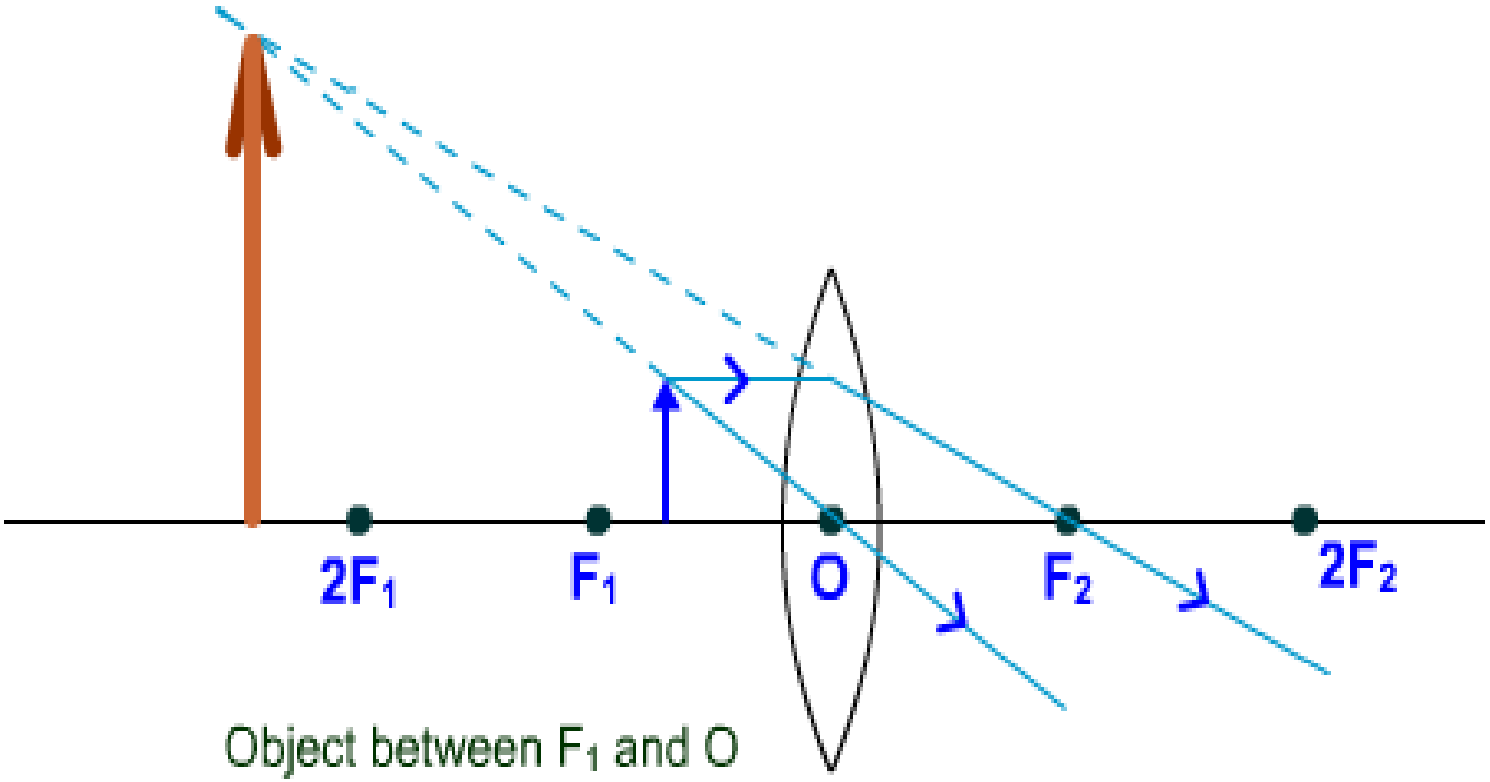
- **<u>Object between centre of curvature, C_1 and principal focus, F_1</u>:**
- An enlarged, real and inverted image is formed beyond centre of curvature, C_2 when an object is placed between centre of curvature, C_1 and principal focus, F_1 of a convex lens.



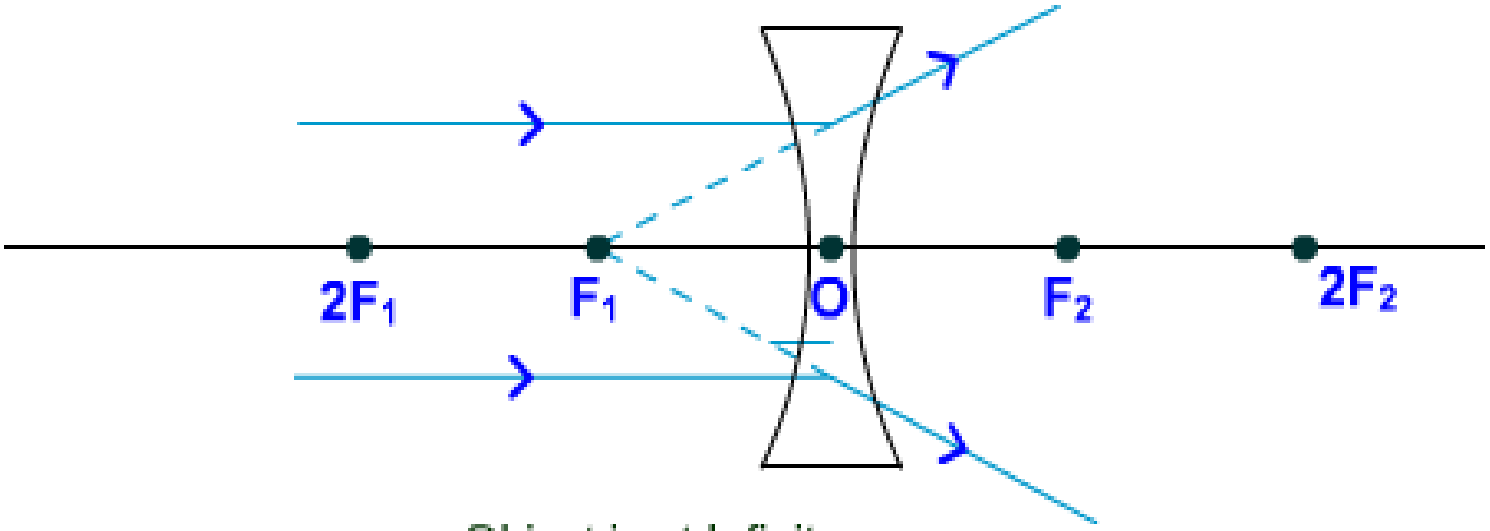
WHEN THE OBJECT IS AT F



Between principal focus, F_1 and optical centre O:-

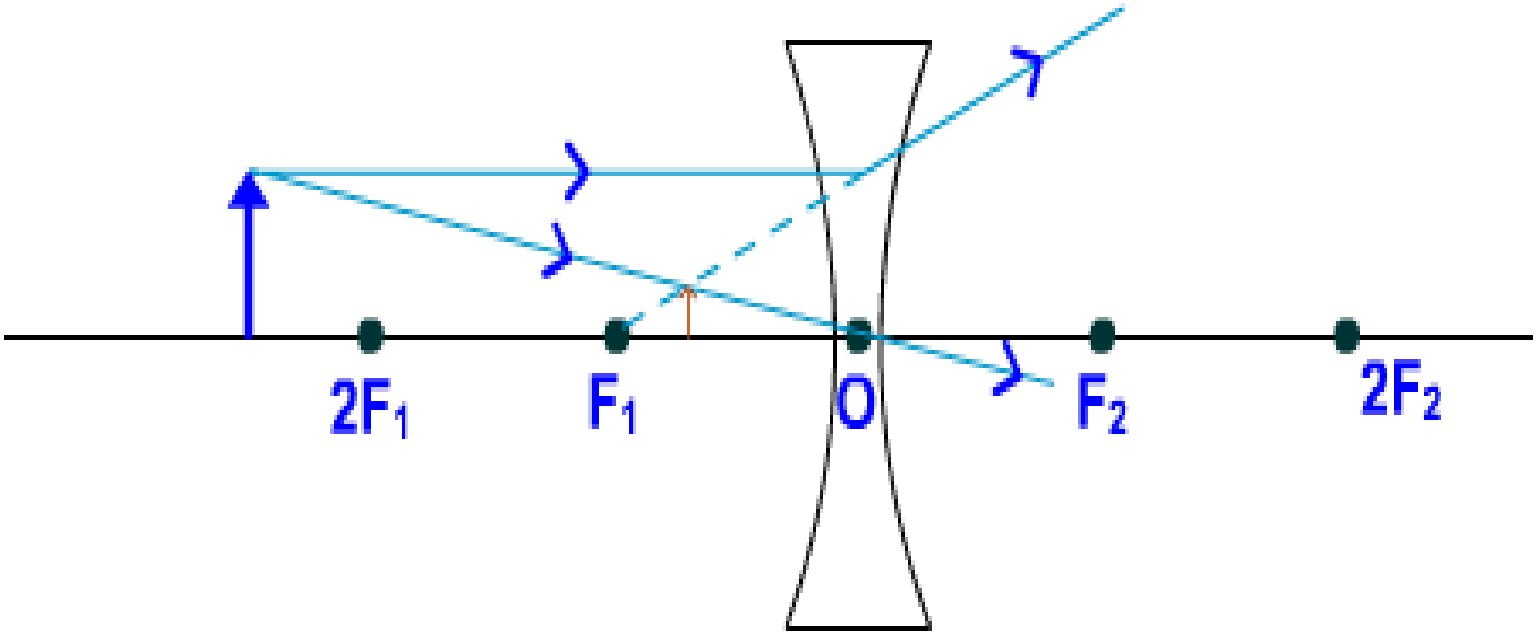


Formation of image by a concave lens when the object is at infinity



Object is at Infinity

Formation of image by a concave lens when the object is between infinity and optic centre

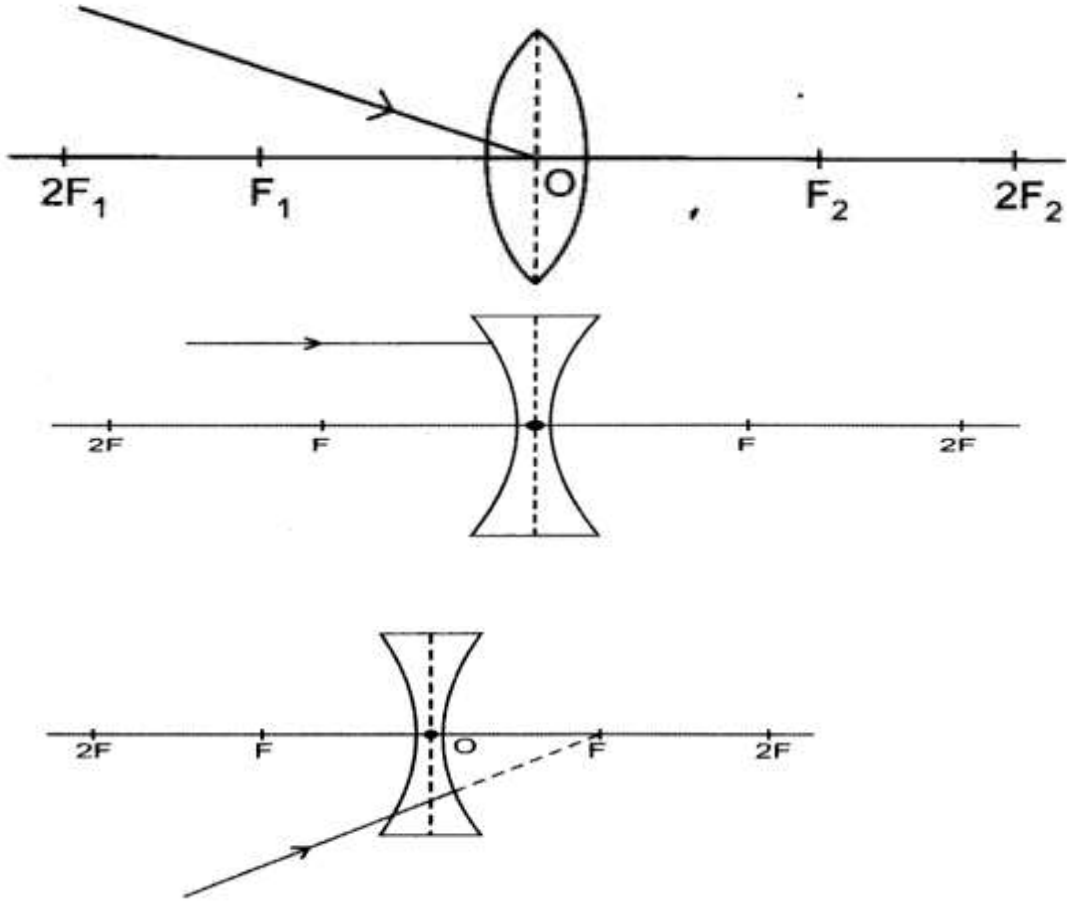


Object between Infinity and Optical centre

Video on ray diagram

- https://youtu.be/c6mLLaqLdvg

HOME ASSIGNMENT



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THANKING YOU

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