ODM EDUCATIONAL GROUP
Changing your Tomorrow

Proof of laws of reflection and refraction using Huygens Principle

CLASS-XII

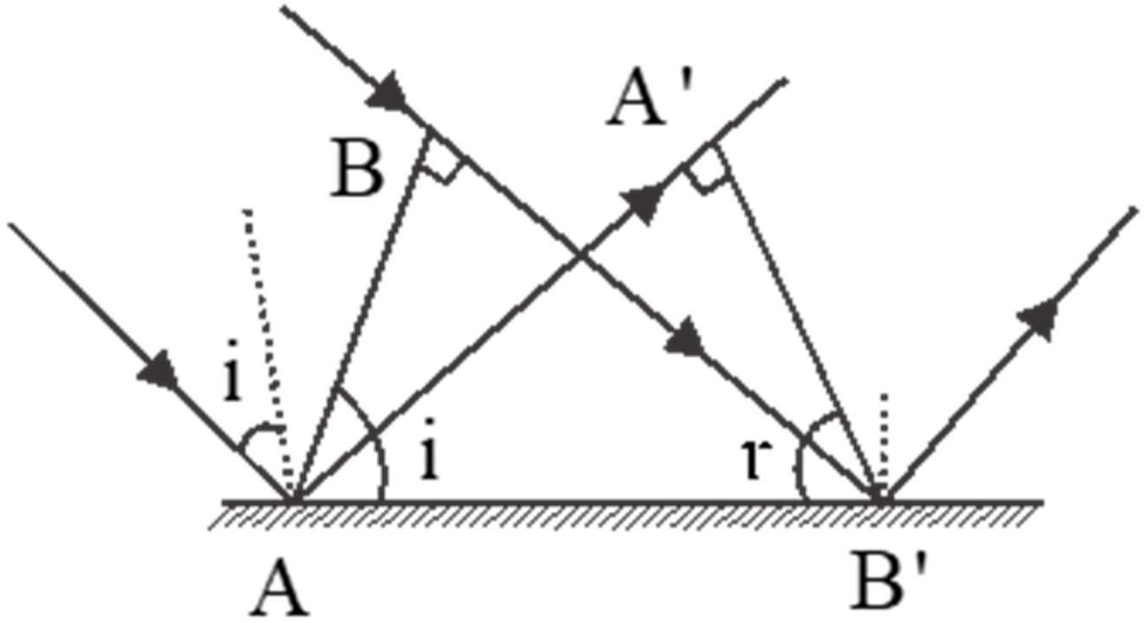
SUBJECT : PHYSICS
CHAPTER NUMBER: 10
CHAPTER NAME : Wave Optics

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

LEARNING OUTCOME

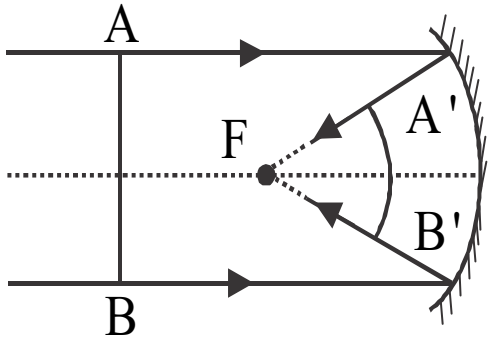
- Understand the Laws of reflection and refraction on the basis of wave theory.
- To understand the application of assumptions of Huygens principle in proving laws.

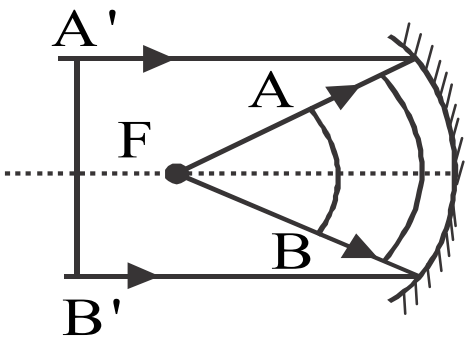
Verification of laws of reflection:-

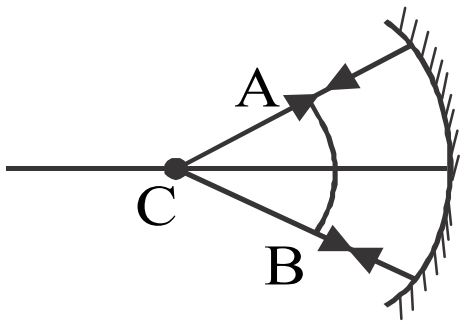


Examples of some reflected wavefronts

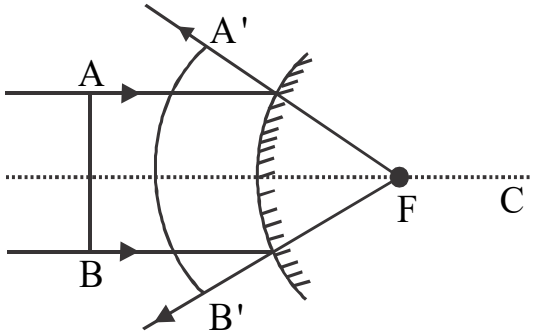
(i) From concave mirror

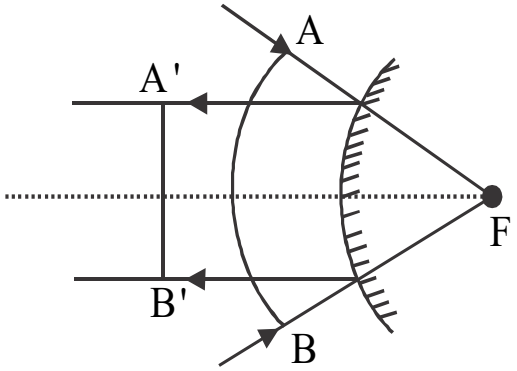


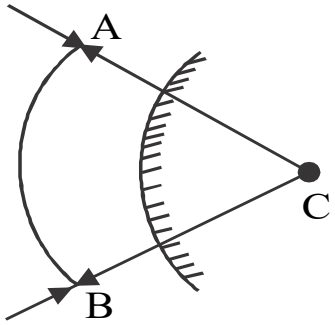




(ii) From convex mirror

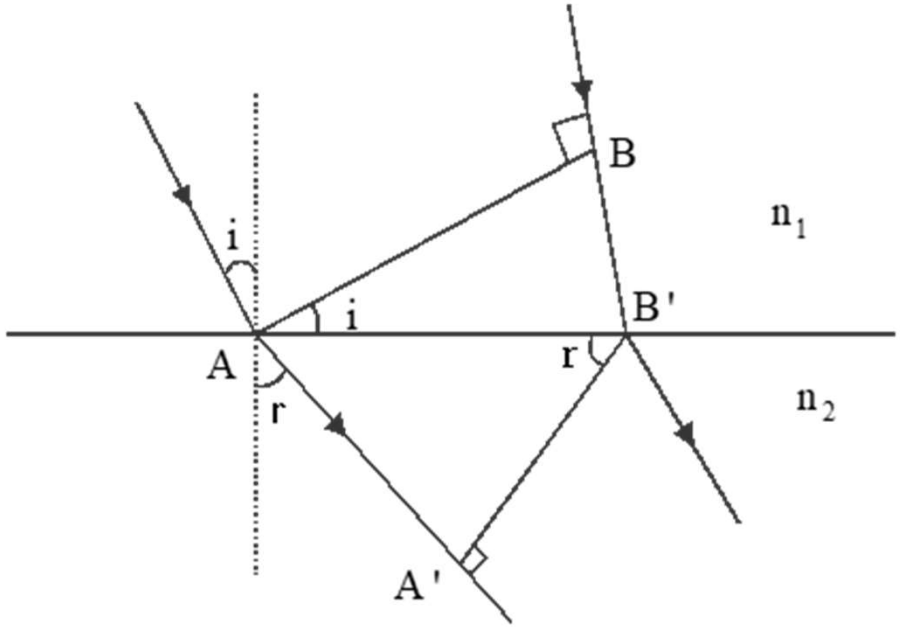






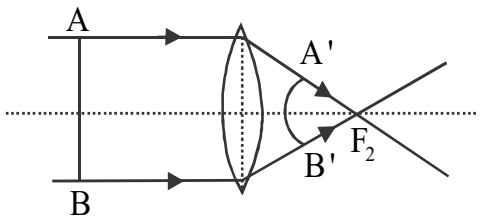
ODM EDUCATIONAL GROUP
Changing your Tomorrow

Verification of laws of refraction:-

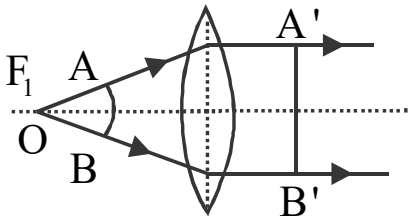


Examples of some refracted wavefronts

(a) Through convex lens

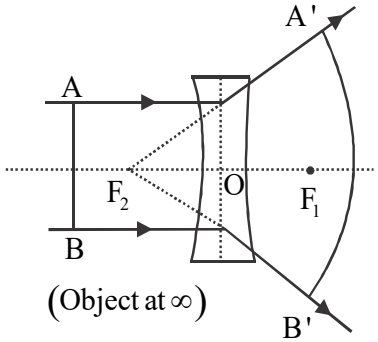


(Object at ∞)

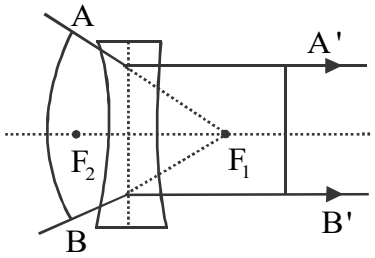


(Object at F_1)

(b) Through concave lens



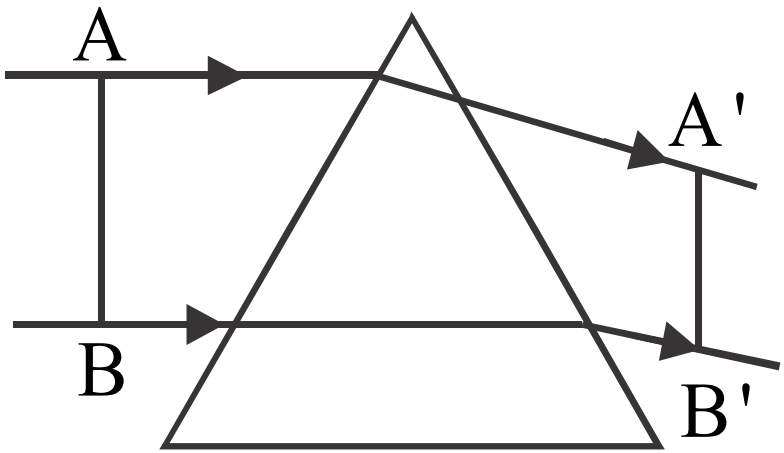
(Object at ∞)



(Virtual object at F_1)

Examples of some refracted wavefronts

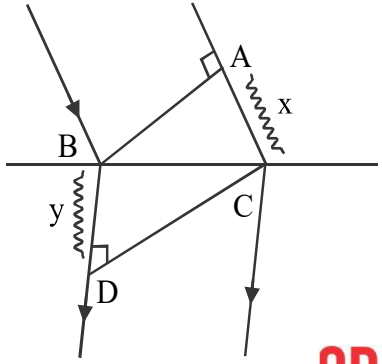
(c) Through a prism



Numericals

1.Two convex lenses are held co-axial with the second focus of first lens coinciding with the first focus of the second lens. Draw the refracted wavefronts if. (a) The object is at infinity (b) Point object at the 1st principal focus of 1st lens.

2.A plane wavefront AB is incident from the air on an interface separating air from a medium. The refracted wavefront in the medium is CD. If AC = x and BD = y, then represents the refractive index of the medium in term of x and y.



THANKING YOU

ODM EDUCATIONAL GROUP

ODM EDUCATIONAL GROUP
Changing your Tomorrow