Date:-7/10/24
Subject:-PHYSICS
Teacher:-Charanjeet Kaur

TENDER HEART HIGH SCHOOL, SEC-33B, CHD.
CLASS-VII
CHAPTER-4 (LIGHT ENERGY)

Light Energy:→ It is a form of Energy which gives us sensation of Sight.

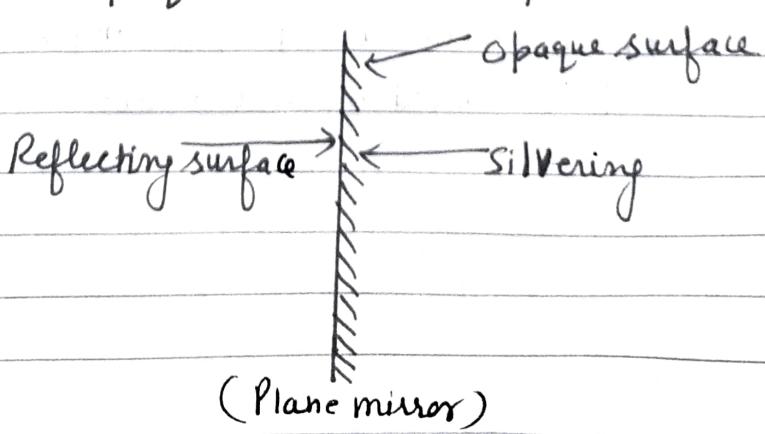
Rectilinear Propagation of light :→ when light travels in straight line. It is called rectilinear propagation of light

Transparent medium :→ The medium through which Light passes easily is called a transparent medium.

Reflection of light:→ The returning of light in the same medium after striking a surface is called reflection of light.

1 Q. How is a plane mirror made?

Ans A plane mirror is made by silvering one side of a thin glass plate. The surface on which silvering is done is called the silvered surface and the other surface from where light is reflected is called a reflecting surface. The silvered surface is coated with some opaque material to protect the silvering on it



(Plane mirror)

2 Q Explain the following terms:→

(a) Incident ray
(b) Reflected ray
(c) Normal
(d) Angle of incidence
(e) Angle of reflection

Ans (a) Incident ray :→ The ray of light which strikes the surface is called the incident ray.

(b) Reflected ray :→ The ray of light which returns back in the same medium, after striking the reflecting surface is called as a reflected ray.

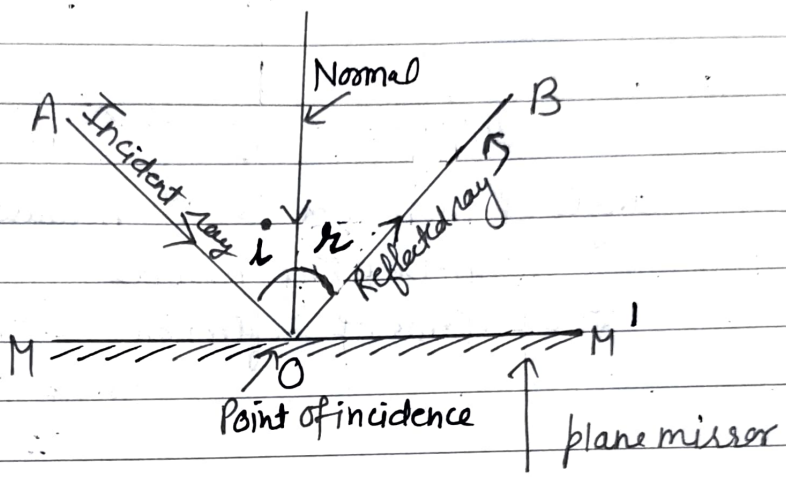
(c) Normal :→ The perpendicular drawn on the surface at the point of incidence is called as normal.

(d) Angle of Incidence :→ The angle between the incident ray and normal is called the angle of incidence. It is denoted by letter i.

(e) Angle of Reflection :→ The angle between the reflected ray and normal is called the angle of reflection. It is denoted by letter r.

3Q Draw a diagram to show the reflection of a light ray from a plane mirror. Label on it the incident ray, the reflected ray, the normal, the angle of incidence 'i' and the angle of reflection 'r'.

Ans



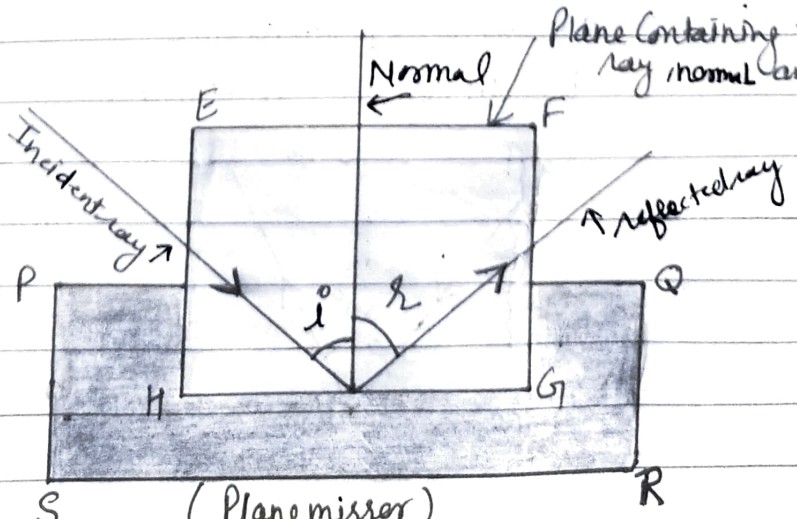
4Q State two laws of Reflection of light?

Ans

First Law :→ The angle of incidence is always equal to the angle of reflection. i.e

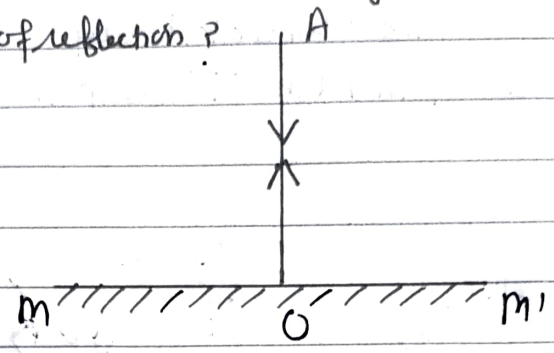
$$\angle i = \angle r$$

Second Law :→ The incident ray, reflected ray and the normal all lie in the same plane.



5Q A ray of light falls normally on a plane mirror. What is the angle of incidence & angle of reflection?

Ans



Angle of incidence is 0° because light ray travels along normal

∵ of laws of reflection $\angle i = \angle r$

So If $\angle i = 0$

$\therefore \angle r = 0$

6Q What is the value of Speed of light in vacuum or air?

Ans

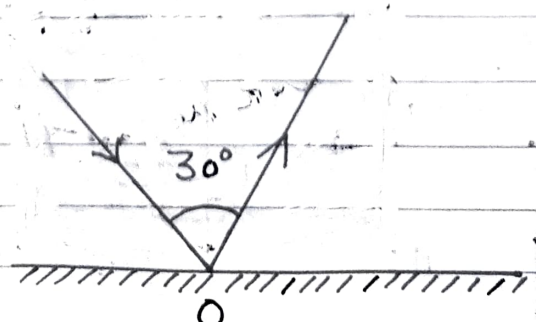
Speed of light in vacuum or air is:

3×10^8 m/s

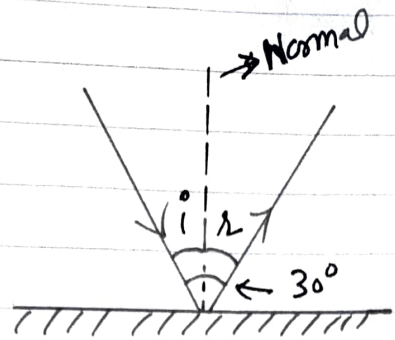
7.Q The diagram shows an incident ray AO and the reflected ray OB from a plane mirror. The angle AOB is 30°. Draw a normal on the plane mirror at the point O and find:—

(a) angle of incidence.

(b) angle of reflection.



Ans

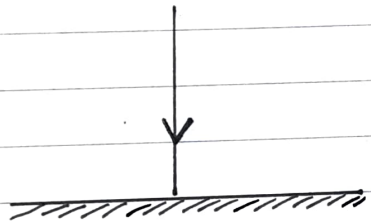


So by Laws of reflection

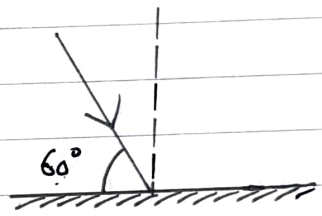
$\angle i = \angle r$

So $\angle i = 15^\circ$
$\angle r = 15^\circ$]

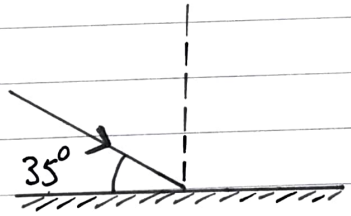
8Q. In the following diagrams, write the angle of reflection, the angle of incidence and draw the reflected ray in each case.



(a)

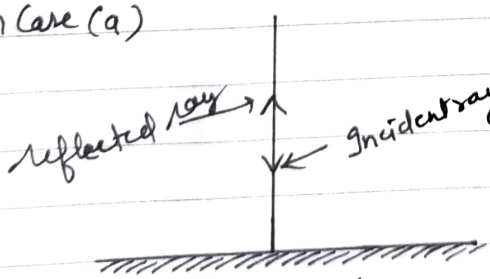


(b)



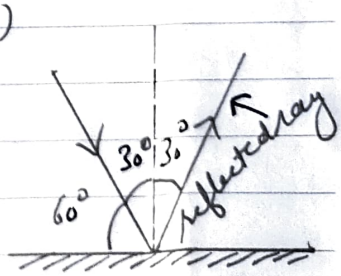
(c)

Ans In Case (a)



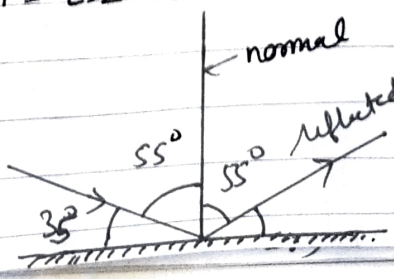
reflected ray is along the normal
and $\angle i = \angle r = 0^\circ$

In Case (b)



$\angle i = 30^\circ$ & $\angle r = 30^\circ$
or $\angle i = \angle r = 30^\circ$

Case (c) :→



$\angle i = 55^\circ$, $\angle r = 55^\circ$
$\angle i = \angle r = 55^\circ$