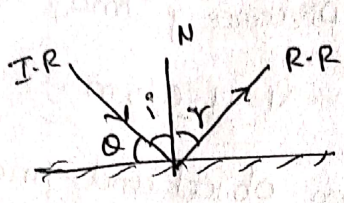
WS-8 7th foundation

Tbasic

(1)



Given angle between incident ray and reflected ray

$Li + Lr = 80^\circ$

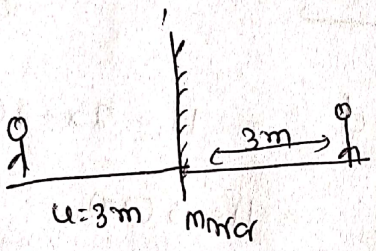
we know According to laws of reflection $Li = Lr$

$\therefore 2Li = 80 \Rightarrow Li = 40^\circ$

From fig $= O + Li = 90^\circ$

$\Rightarrow O = 90 - Li = 90 - 40 = 50^\circ$

(4)



A plane mirror always forms an image at a distance same as that of object.

$V = u = 3m.$

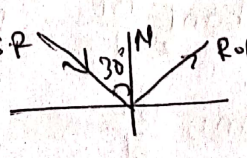
$\therefore$ distance between boy and image $= u + v = 3 + 3 = 6m$

(5)

Since focal length of mirror is $= +15$

ie +ve focal length so it is a convex mirror.

(6)



Given $Li = 30^\circ \Rightarrow Lr = 30^\circ$

Angle of deviation $= 180 - 2Li = 180 - 2 \times 30$

$= 180 - 60 = 120^\circ$

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(7)

Given object distance = 0.5 m.

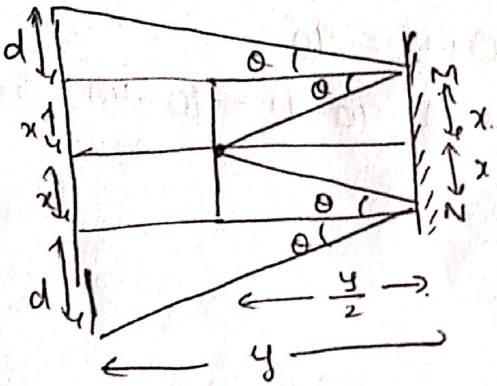
For a plane mirror Distance of image = Distance of object

$\Rightarrow v = u = 0.5\,m.$

$\therefore$ Distance between object and image is

$= u + v = 0.5 + 0.5 = 1\,m$

(8)



$MN = 2x \Rightarrow$ height of mirror.

$\tan\theta = \frac{d}{y} = \frac{x}{\frac{y}{2}}$

$d = 2x.$

$H = 2x + 2d \Rightarrow H = 2x + 2(2x) \Rightarrow H = 6x.$

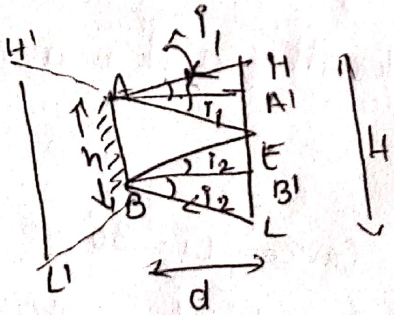
$\Rightarrow H = 3(2x) \Rightarrow \frac{H}{3} = 2x \Rightarrow MN = \frac{H}{3}$

(9)

Given size of object $= h_0 = 0.5\,m$

Size of image = Size of object $= 0.5\,m$

(12)



$\tan i = \frac{A'E}{d}$; $\tan i = \frac{A'H}{d}$

$\therefore A'E = A'H$

$\tan i_2 = \frac{B'E}{d}$ $\therefore B'E = B'L$

$\tan i_2 = \frac{B'L}{d}$

$H = 2(x+y)$; $h = x+y$

$H = 2h \Rightarrow h = \frac{H}{2}$

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