



where;

$H_i$  = height of the image

$H_o$  = height of the object

$D_i$  = distance between image and mirror

$D_o$  = distance between object and mirror

$$D_i = 3D_o$$

$$X = 3(120 - X)$$

$$X = D_i = 90\text{cm}$$

$$D_o = 30\text{cm}$$

$$\frac{1}{f} = \frac{1}{D_o} + \frac{1}{D_i}$$

$$\frac{1}{f} = \frac{1}{30\text{cm}} - \frac{1}{90\text{cm}}$$

(Since image is formed behind the mirror we put "-" sign in front of it.)

$$f = 45\text{cm}$$