解答

1. 如下圖

$$\frac{h}{h^{'}}=\frac{u-f1}{f1}=\frac{f2}{v-f2}$$

🡺$\frac{f1}{u}+\frac{f2}{v}=1$,

f1=10cm, f2=15cm, u=20cm, then v= 30cm (Ans)

1. 如下圖

$$n1sinθ1=nsinr=n2sinθ2$$

1,2🡪0,

$n1θ1=n2θ2$ (Ans)

1. 如下圖

$θ\_{1}=\frac{h}{u} θ\_{2}=\frac{h^{'}}{v}$

$$\frac{h}{h'}=\frac{uθ\_{1}}{vθ\_{2}}=\frac{n\_{2}u}{n\_{1}v}$$

$\frac{h}{h^{'}}=\frac{u-f1}{f1}=\frac{n2u}{n1v}\rightarrow f1=\frac{n1uv}{n2u+n1v}$ (a)

Because $\frac{f1}{u}+\frac{f2}{v}=1$

Hence $f2=\frac{n2uv}{n2u+n1v}$ (b)

From (a) and (b)

$$\frac{f1}{f2}=\frac{n1}{n2}$$

 n1=1.2, f1=10cm, f2=15cm, n2=1.8 (Ans)