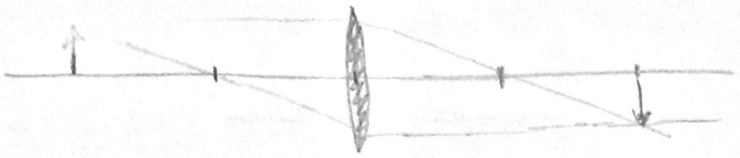
19 -

PROVAS (A) e (C) → Lente Convergente



$$\frac{1}{f} = \frac{1}{s} + \frac{1}{s'} \rightarrow \frac{1}{s'} = \frac{1}{f} - \frac{1}{s} = \frac{s-f}{f \cdot s} = \frac{60-30}{30 \cdot 60} = \frac{30}{1800}$$

$$s' = \frac{180}{3} = +60\ cm \quad (\text{IMAG. REAL})$$

$$m = -\frac{s'}{s} = -1 \quad (\text{IMAG. INVERTIDA})$$

PROVA (B) → Lente Divergente

$$\frac{1}{s'} = \frac{60-(-30)}{60 \cdot (-30)} = -\frac{90}{1800} \rightarrow s' = -\frac{180}{9} = -20\ cm$$

(IMAG VIRTUAL)

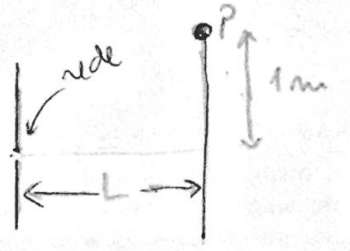
$$m = -\frac{s'}{s} = -\frac{(-20)}{60} = +1/3$$

20 -

$d = 1{,}414\ \mu m$

$d \operatorname{sen}\theta_m = m\lambda$

$\Rightarrow m = \dfrac{d \operatorname{sen}\theta_m}{\lambda}$




$\tan\theta_m = 1$

$\theta_m = 45°$

$L = 1\ m$

PROVA (A) $m = \dfrac{1{,}414 \cdot \operatorname{sen} 45^\circ}{500 \times 10^{-9}} \times 10^{-6} = \dfrac{1{,}414}{0{,}5} \cdot \dfrac{1}{\sqrt{2}} \approx 2$ ✓

PROVA (B) $\lambda = 333\ nm \rightarrow m = 3$ ✓