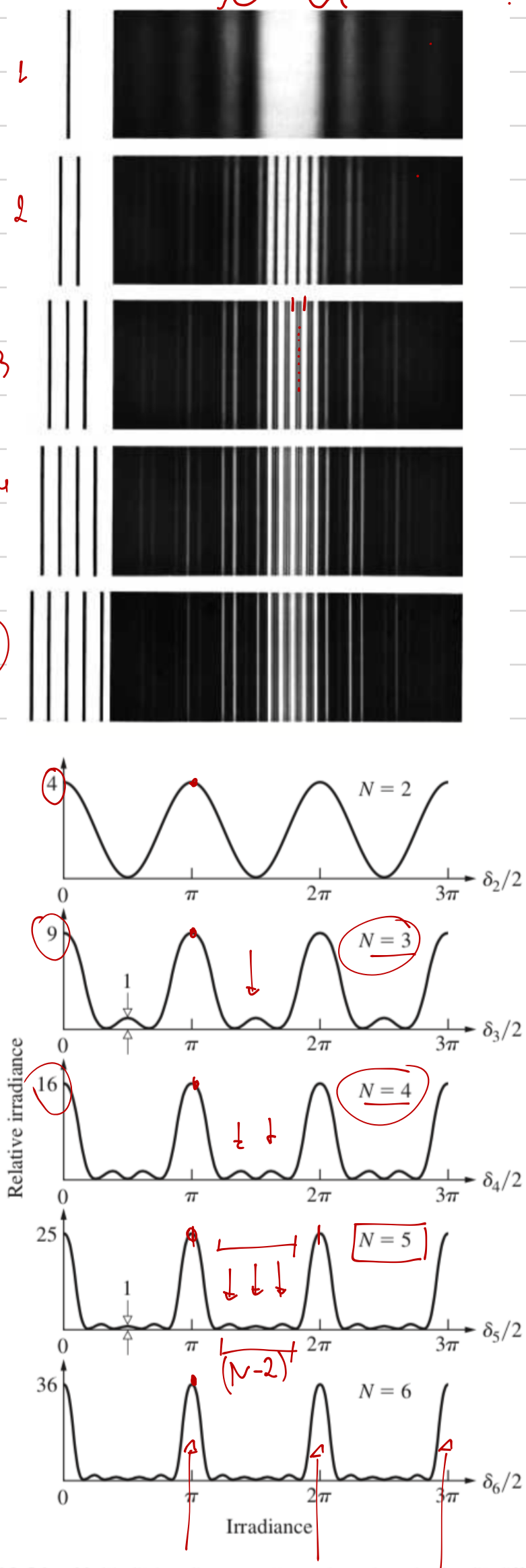
Fendas Múltiplas

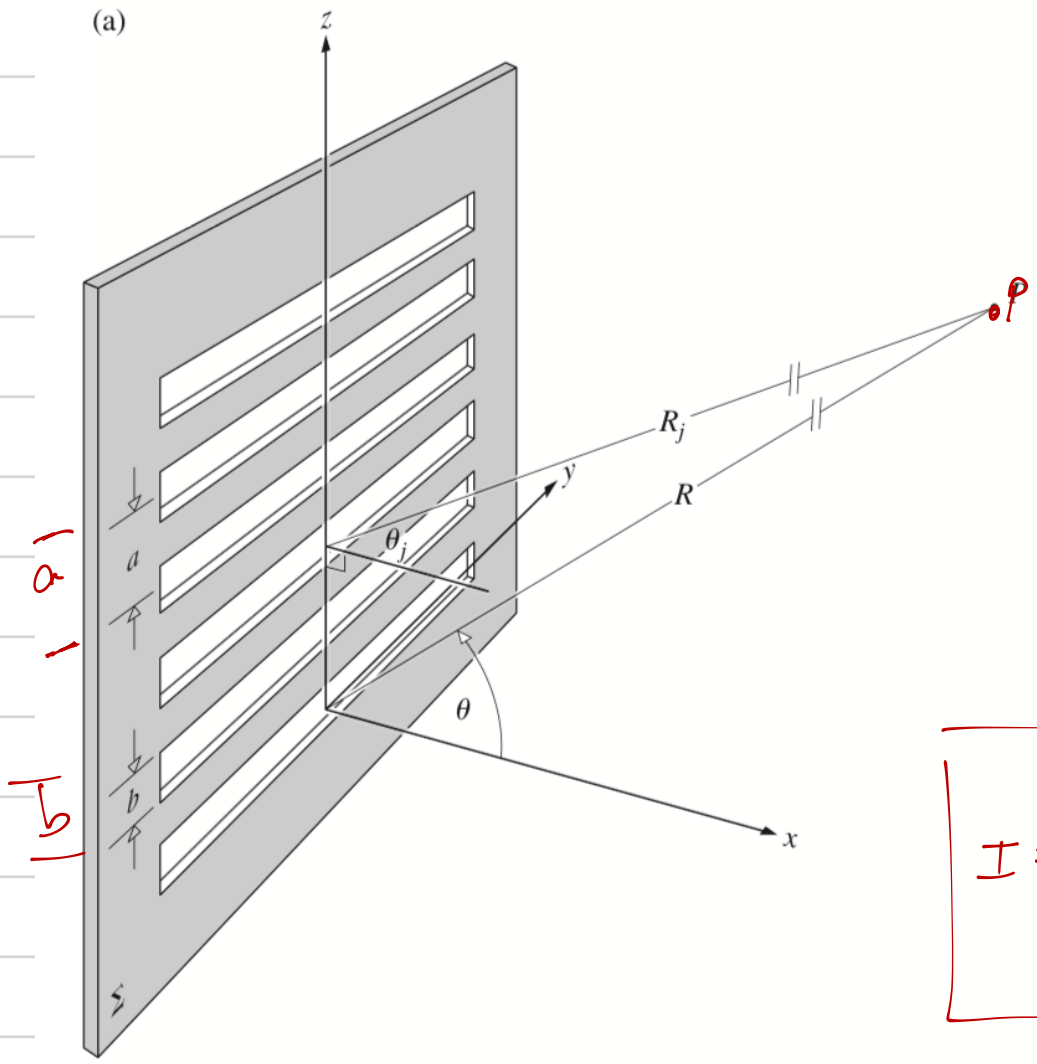


$\left(\frac{\sin\beta}{\beta}\right)^2$ $b \to 0$

I fendas múltiplas

$I \propto N^2$

Figure 10.21 Multi-slit irradiance patterns ignoring single-slit diffraction. Here, $\delta_N/2 = \frac{\pi}{\lambda} a \sin\theta$ and N is the number of long, parallel, very narrow slits. Notice how the principal maxima increase as N^2.



$$E_T = c\int_{-b/2}^{+b/2} F(z)\,dz + c\int_{a-\frac{b}{2}}^{a+b/2} F(z)\,dz + \cdots + \int_{(N-1)a-\frac{b}{2}}^{(N-1)\cdot a+b/2} F(z)\,dz$$

$$E_T = bc\,\frac{\operatorname{sen}\beta}{\beta}\cdot\left(\frac{\operatorname{sen} N\alpha}{\operatorname{sen}\alpha}\right)\cdot \operatorname{sen}\left[\omega t - KR + (N-1)\cdot\alpha\right]$$

$$\boxed{I = I_0\left(\frac{\operatorname{sen}\beta}{\beta}\right)^2\cdot\left(\frac{\operatorname{sen} N\alpha}{\alpha}\right)^2}$$

$\theta = 0$ $\quad$ $\theta = 0$

$= 1$ $\quad$ $= N$

$$\boxed{I(0) = N I_0}$$

máximos principais

$\alpha = 0, \pm\pi, \pm 2\pi$

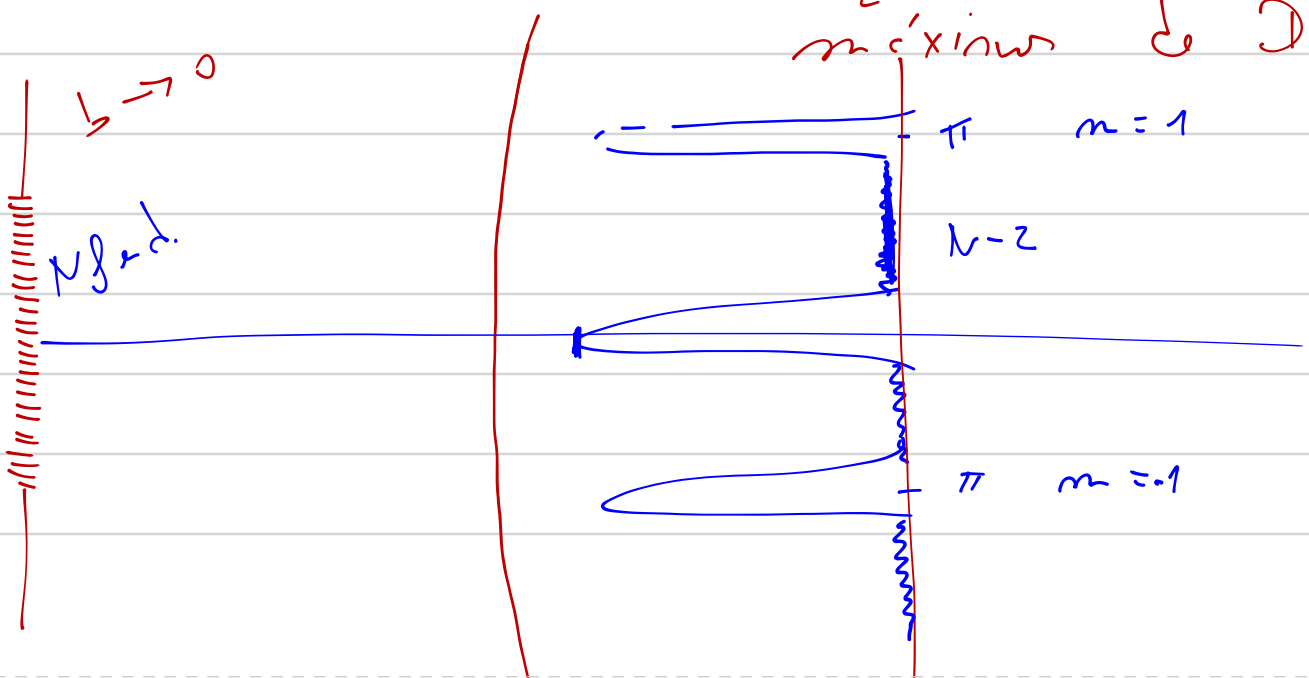
$m\pi$

$\alpha = \frac{K a \operatorname{sen}\theta}{2}$ $\quad$ a = Separação entre as fendas

$$m\pi = \frac{K a \operatorname{sen}\theta}{2} = \frac{2\pi}{\lambda}\frac{a}{2}\cdot\operatorname{sen}\theta$$

$$\boxed{a\operatorname{sen}\theta = m\lambda}$$

máximos de Difração



$N \to \infty$
$b \to 0$

$$a \operatorname{Sen} \theta = m\lambda$$