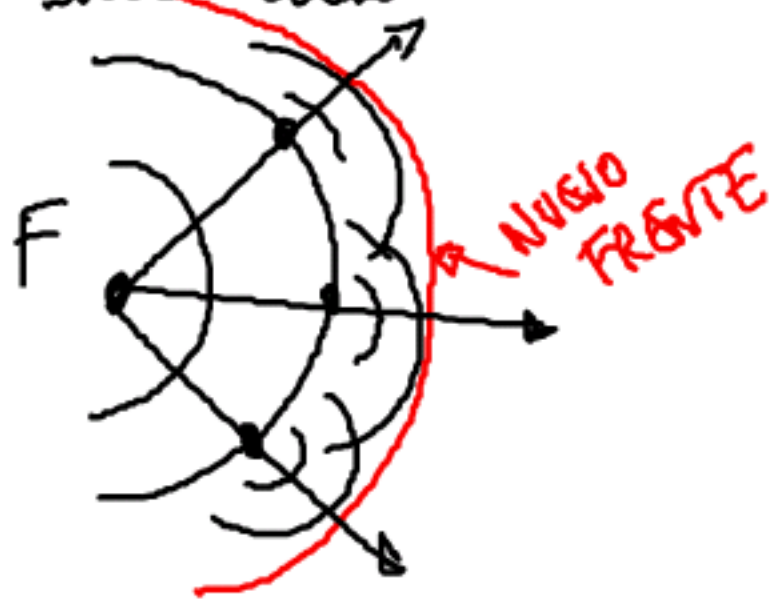
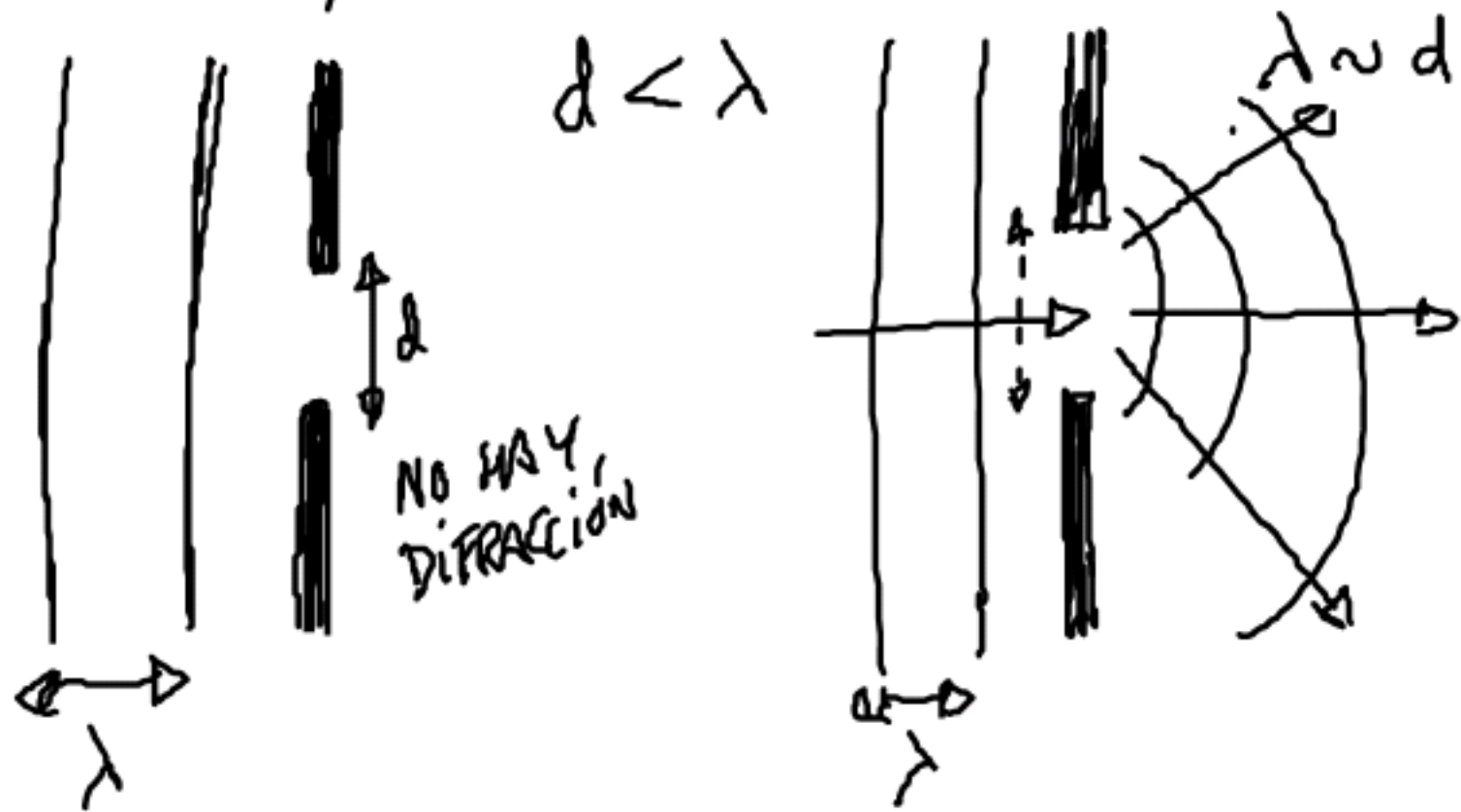


① Principio de Huygens: TODO PUNTO DE UN FRENTE DE ONDAS SE CONVIERTE EN UN CENTRO EMISOR DE ONDAS ELEMENTALES SECUNDARIAS, DE IGUAL  $v, f$ , CUYA ENVOLVENTE CONSTITUYE EL NUEVO FRENTE DE ONDAS.



- PROPAGACIÓN DE ONDA
- FENÓMENOS ONDULATORIOS

DIFRACCIÓN: CAMBIO DE DIRECCIÓN EN LA PROPAGACIÓN DE LA ONDA, AL ENCONTRARSE ÉSTA UN OBSTÁCULO (ABERTURA).



②-

$$\beta = 10 \log \frac{I}{I_0}$$

$$\beta_2 - \beta_1 = 10 \log \frac{I_2}{I_0} - 10 \log \frac{I_1}{I_0} =$$

$$= 10 \left[ \log I_2 - \cancel{\log I_0} - \log I_1 + \cancel{\log I_0} \right]$$

$$= 10 \log \frac{I_2}{I_1}$$

$$\beta_2 - \beta_1 = 10 \log \frac{I_2}{I_1}$$

$$60 - 30 = 10 \log \frac{I_2}{I_1}$$

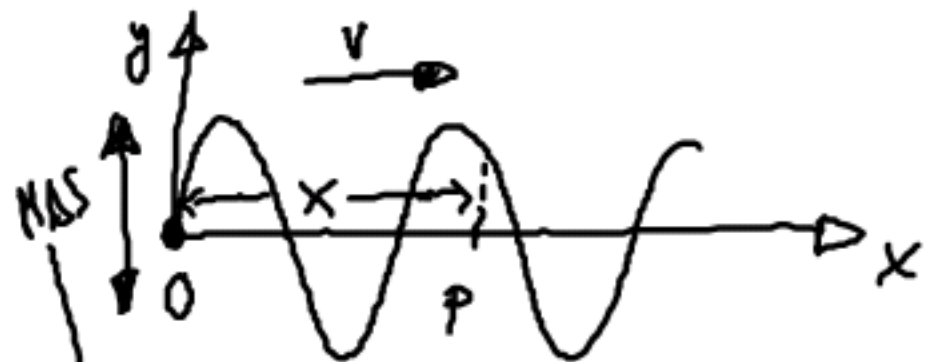
$$3 = \log \frac{I_2}{I_1}$$

$$\frac{I_2}{I_1} = 10^3$$

SÓLO GN I NO  
PUEDO SOBER CUAL  
ES MÁS AGUDO.



3-



RETARDO:

$$t' = \frac{x}{v}$$

$f, A$

$$y(t) = A \operatorname{Sen}(\omega t + \varphi_0)$$

$$\omega = 2\pi f$$

$$y(0, t-t') = y(x=P, t)$$

$$y(0, t-t') = A \operatorname{Sen}(\omega(t-t') + \varphi_0)$$

$$y(0, t-t') = A \sin\left(\omega t - \omega \cdot \frac{x}{v} + \varphi_0\right) =$$
$$= A \sin\left(\omega t - \omega \cdot \frac{x}{\omega/k} + \varphi_0\right)$$

$$v = \lambda \cdot f = \frac{\Delta x}{\Delta t}$$

$$v = \lambda \cdot \frac{\omega}{2\pi} = \frac{\omega}{k}$$

$$k = \frac{2\pi}{\lambda}$$

$$y(x, t) = A \sin(\omega t - kx + \varphi_0)$$

$$\textcircled{4} \quad y(x,t) = 3 \cos [\pi(200t - 5x + 1)] = 3 \cos (200\pi t - 5\pi x + \pi)$$

$$y(x,t) = A \cos [\omega t - kx + \varphi_0] \quad \boxed{+OX}$$

$$a) \quad v = \lambda \cdot f = \boxed{40 \text{ m/s}} \quad \left| \begin{array}{l} \omega = 200\pi \text{ rad/s} \\ k = 5\pi \text{ m}^{-1} \\ \varphi_0 = \pi \text{ rad} \\ A = 3 \text{ m} \end{array} \right.$$

$$f = \frac{\omega}{2\pi} = 100 \text{ Hz}$$

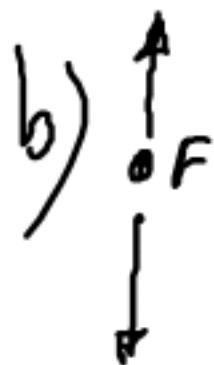
$$\lambda = \frac{2\pi}{k} = \frac{2}{5} \text{ m}$$

$$V(x,t) = \frac{\partial y}{\partial t} = -A\omega \operatorname{sen}(\omega t - kx + \phi_0)$$

EL MÁX SE DA DA  $\operatorname{sen}(\ ) = -1$

$$V_{\max} = A\omega = 600\pi = \underline{\underline{1885 \text{ m/s}}}$$



b) 

$$y(0, t) = 3 \cos(200\pi t + \pi) \text{ m}$$

$$y(0, 0) = 3 \cos \pi = -3 \text{ m}$$



$$a_{\max} = A\omega^2$$
$$V_{\text{osc.}} = 0$$

c) Foco

$$\Delta t = 0,02 \text{ s}$$

$$y_2(o, t_2) = A \cos(\overbrace{\omega t_2 + \varphi_0}^{\varphi_2})$$

$$y_1(o, t_1) = A \cos(\overbrace{\omega t_1 + \varphi_0}^{\varphi_1})$$

$$\Delta \varphi = \varphi_2 - \varphi_1 = \underline{\underline{\omega \cdot \Delta t}}$$

$$\Delta \varphi = 200\pi \cdot 0,02 = \underline{\underline{4\pi \text{ rad}}}$$

EN FASE

$$b) \Delta\varphi = \pi \text{ rad}$$

$$\Delta\varphi = \varphi_2 - \varphi_1 = k \Delta x \quad * \text{ DS/40}$$

$$\pi = 5\pi \cdot \Delta x$$

$$\Delta x = \frac{1}{5} \text{ m} = \boxed{0,2 \text{ m}}$$