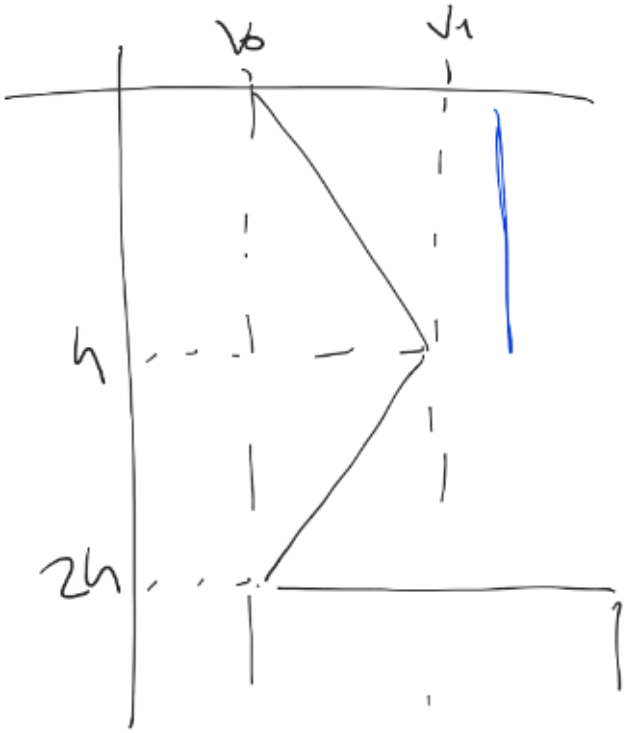
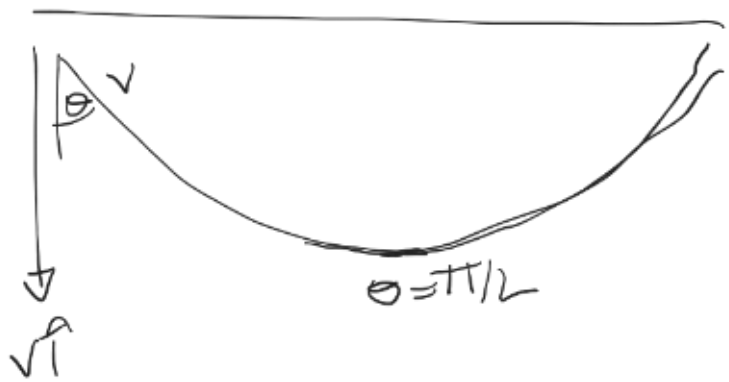
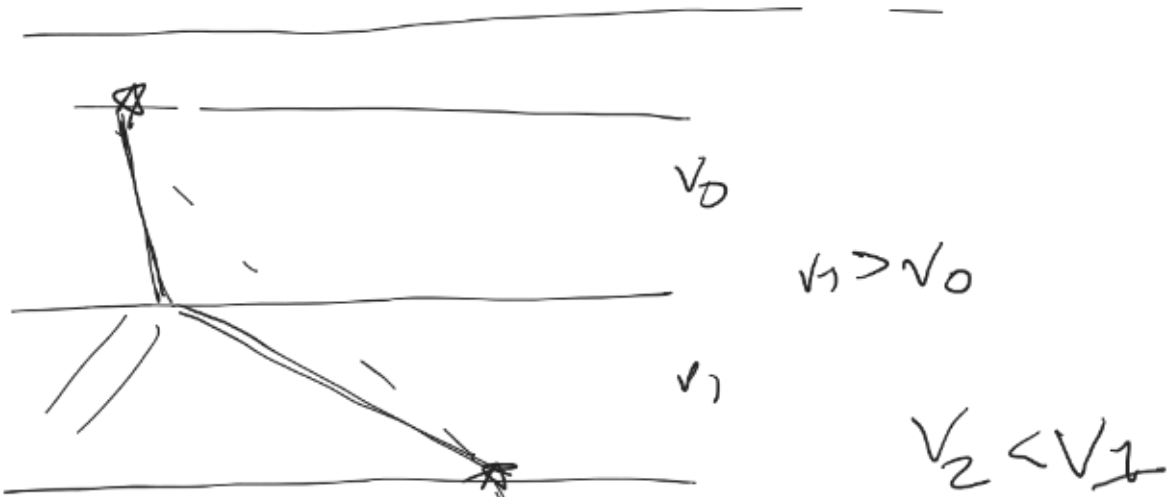
AUXILIAR 1 EXPLORACIÓN:
Sísmica Activa



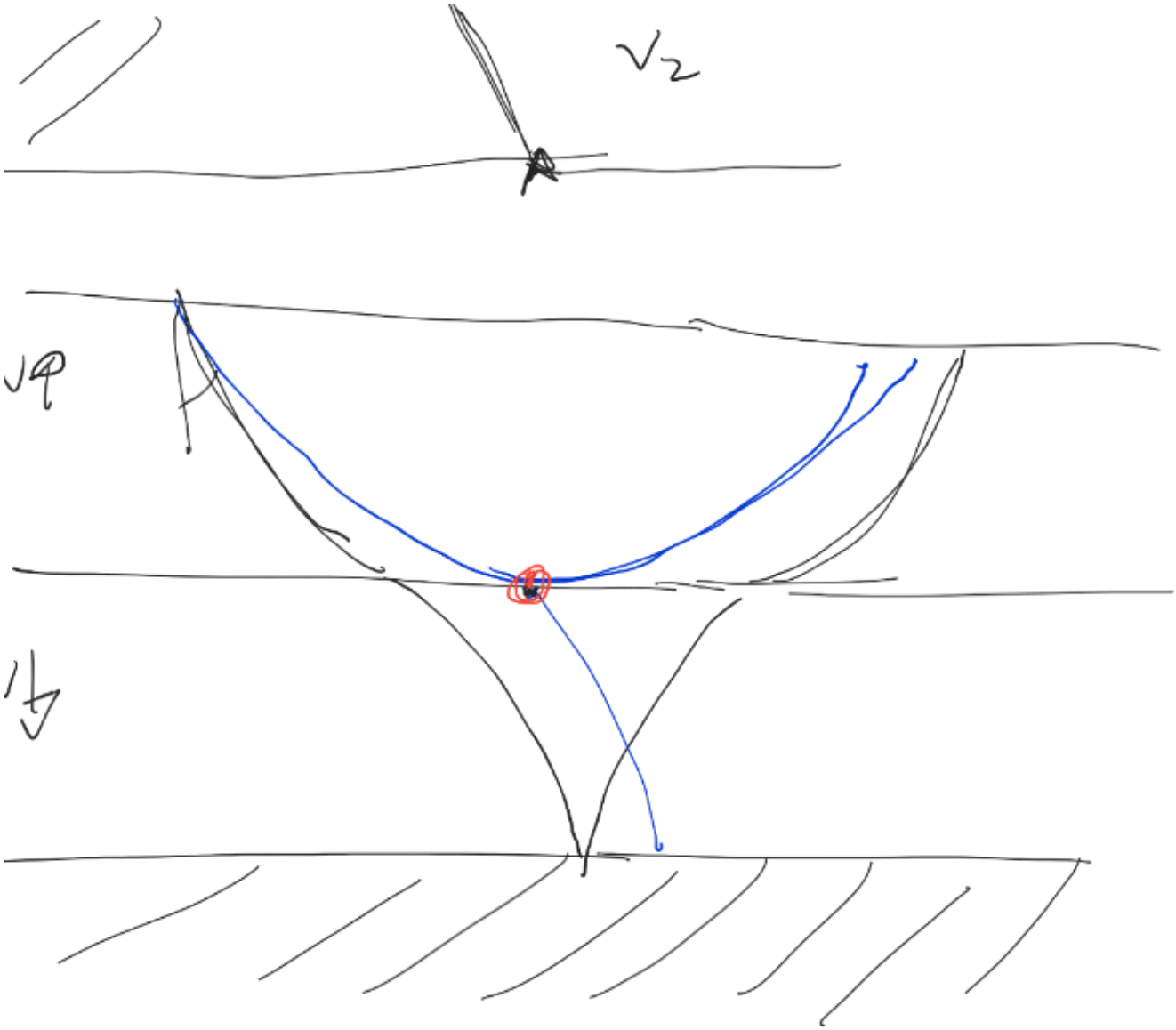


$$p = \frac{\operatorname{sen}\theta(z)}{V(z)}$$



$V_1 > V_0$

$V_2 < V_1$



$V_{max} \rightarrow p$.

$z = h \rightarrow v(z) = V_1$

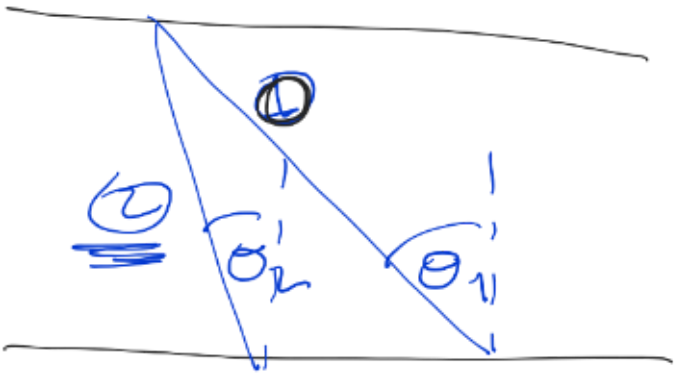
$p = \frac{\text{sen}\theta}{V}$

$p_{lim} = \frac{\text{sen}(\theta = \pi/2)}{V_1}$ ($\text{sen}(\theta = \pi/2) \rightarrow 1$)

$$\boxed{p_{lim} = \frac{1}{V_1}}$$

$p^* > p_{lim}$

$p^* < p_{lim}$

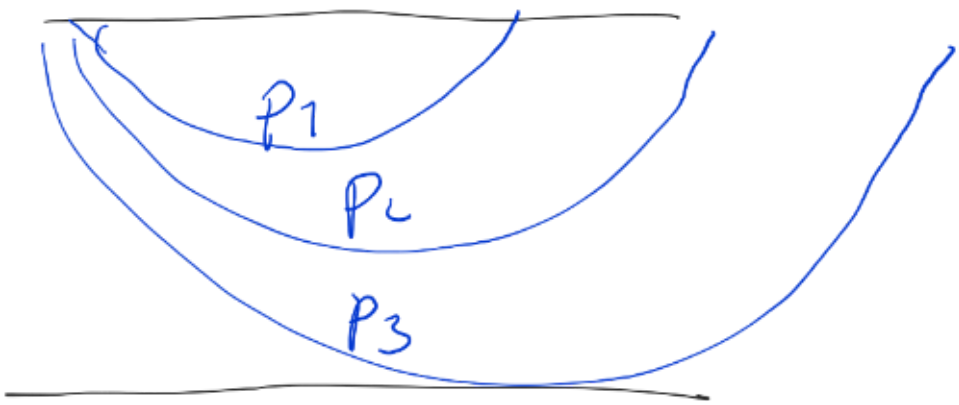


$$p_1 = \frac{\operatorname{sen}\theta_1}{v_0} \qquad p_2 = \frac{\operatorname{sen}\theta_2}{v_0}$$

$$0 \leq \theta_1 \leq \theta_2 \leq \pi/2$$

$$p_1 > p_2$$

$\uparrow p \Longrightarrow$ incide menos hacia profundidad



$$p_1 > p_2 > p_3$$

La condición para que el rayo llegue al reflector es que:

$$p < p_{lim}$$

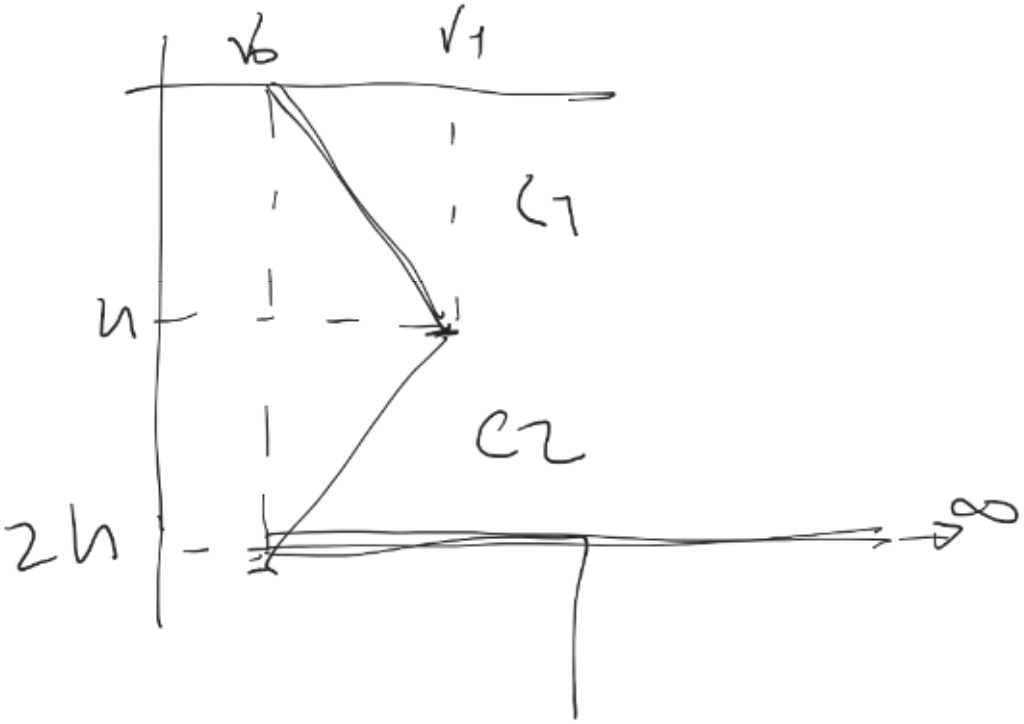
$$p_{lim} = \frac{1}{v_1}$$

$V = V(z)$

$\sigma = \sigma(z)$

$$x(p) = 2 \int_{z_1}^{z_2} \frac{pV}{\sqrt{1-(pV)^2}}\, dz$$

$V(z)$



$$v_{c1} = v_0 + kz \qquad k = \frac{v_1 - v_0}{h}$$

$$v_{c2} = v_1 - kz$$

$$dV_{C_1} = +k\,dz$$

$$\Rightarrow dz = \frac{dV}{k} \quad \text{capa 1}$$

$$dV_{C_2} = -k\,dz \Rightarrow dz = -\frac{dV}{k}$$

$$X(P) = \frac{2p}{k}\left[\int_{V_0}^{V_1} \frac{V}{\sqrt{1-(pV)^2}}\,dV + \int_{V_1}^{V_0} \frac{V}{\sqrt{1-(pV)^2}}(-dV)\right]$$

$$X(P) = \frac{2p}{k}\left[\int_{V_0}^{V_1} \frac{V\,dV}{\sqrt{1-(pV)^2}} - \int_{V_1}^{V_0} \frac{V}{\sqrt{1-(pV)^2}}\,dV\right]$$

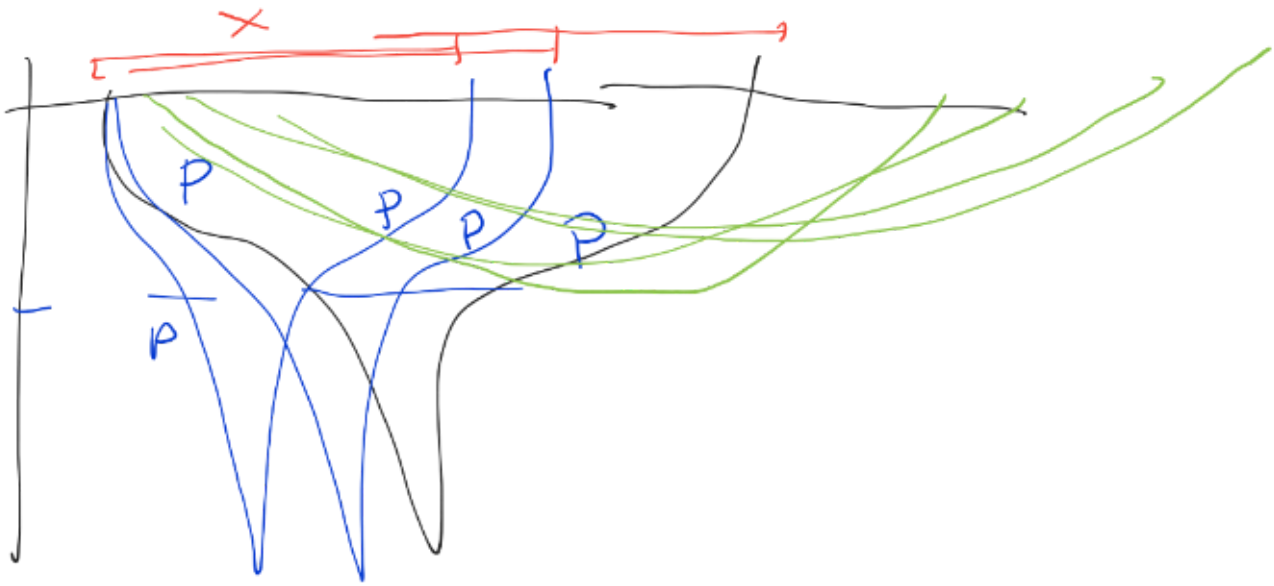
$$\int \frac{x}{\sqrt{1-(px)^2}} = \left(-\frac{\sqrt{1-(px)^2}^{1/2}}{p^2}\right)'$$

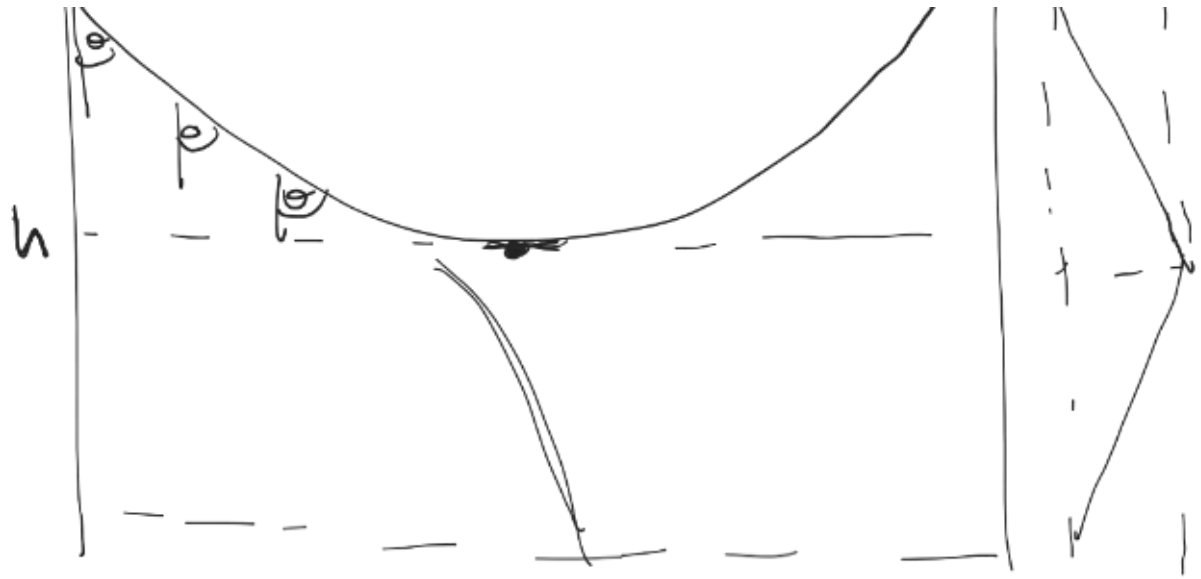
$$+ \frac{p^2 \cdot 2x(-1)}{2\sqrt{1-(px)^2}\,p^2}$$

$$x(p) = \frac{2p}{k}\left[-\frac{\sqrt{1-(pv)^2}}{p^2}\Big|_{v_0}^{v_1} + \frac{\sqrt{1-(pv)^2}}{p^2}\Big|_{v_1}^{v_0} \right]$$

$$x(p) = \frac{2}{kp}\left[-\sqrt{1-(pv_1)^2} + \sqrt{1-(pv_0)^2} + \sqrt{1-(pv_0)^2} - \sqrt{1-(pv_1)^2} \right]$$

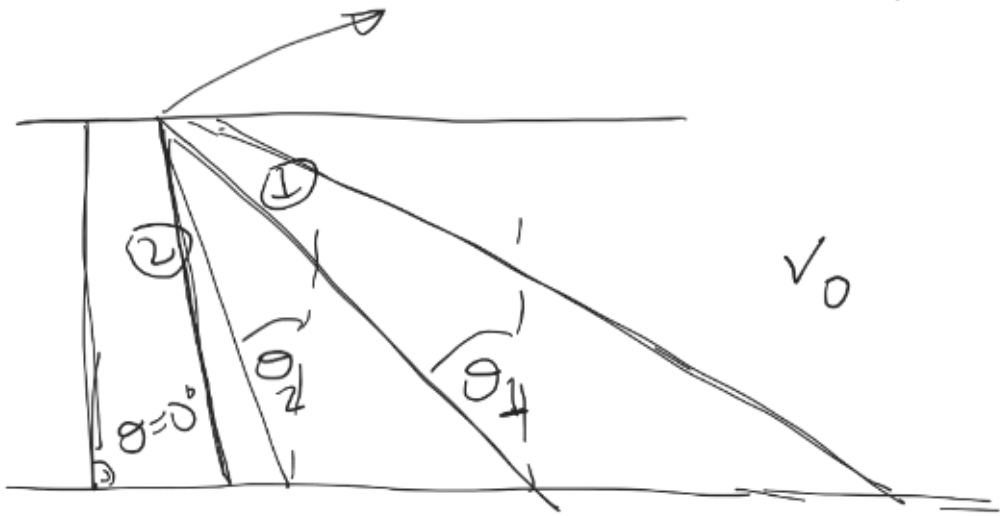
$$\boxed{x(p) = \frac{4}{kp}\left[\sqrt{1-(pv_0)^2} - \sqrt{1-(pv_1)^2}\right]}$$





$$p = \frac{\operatorname{sen}\theta(z)}{v(z)} \qquad \theta(z=h) = \pi/2$$

$$p = \frac{1}{v_1} \qquad p^* < p_{lim} \qquad p^* > p_{lim}$$

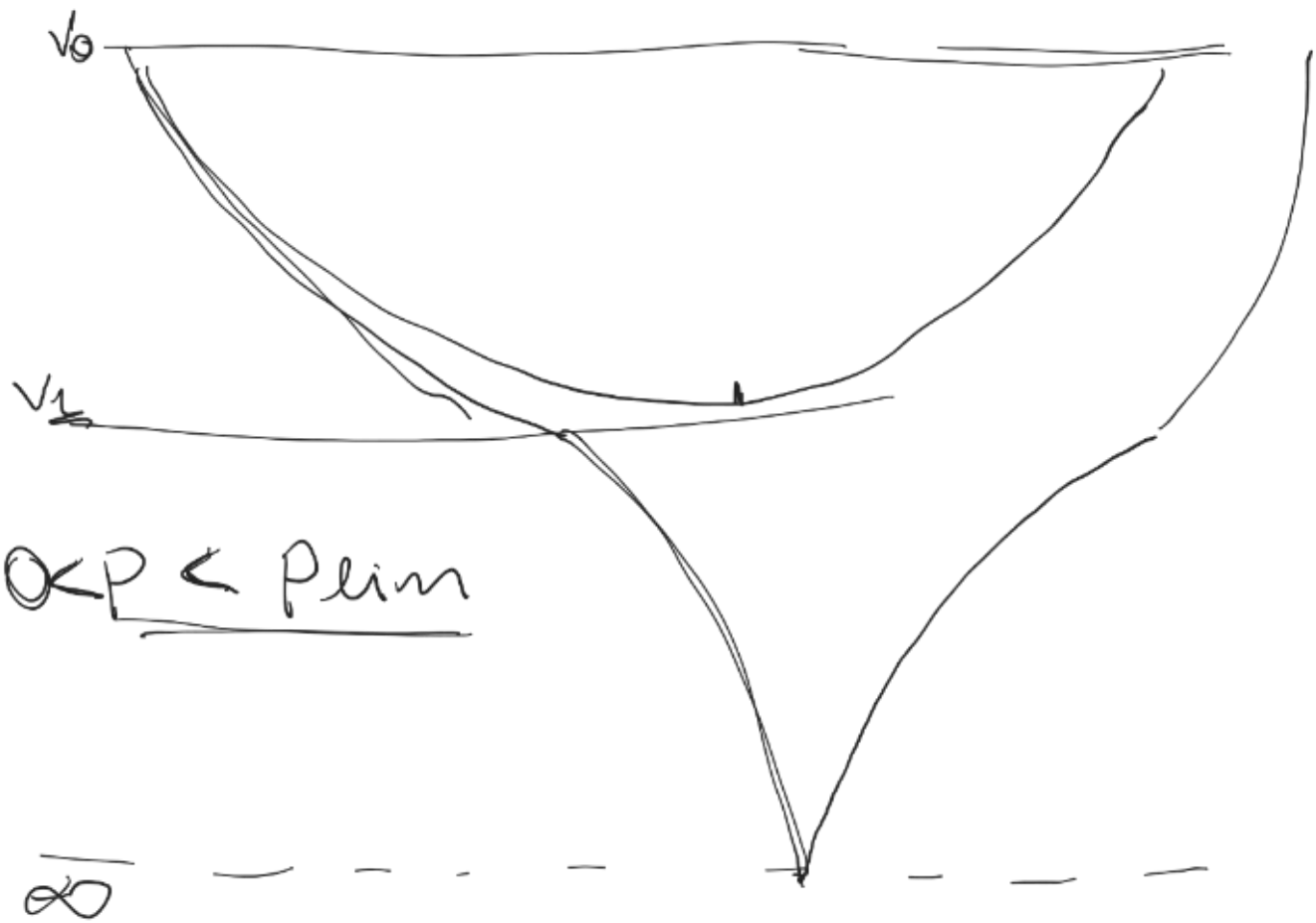


$$p_1 = \frac{\operatorname{sen}\theta_1}{v_0} \qquad p_2 = \frac{\operatorname{sen}\theta_2}{v_0}$$

$0 \leq \theta_2 \leq \theta_1 \leq \pi/2$ (seno)

$0 \leq \text{sen}\theta_2 \leq \text{sen}\theta_1 \leq 1$

$\boxed{P_1 > P_2}$



$0 < P < P_{lim}$