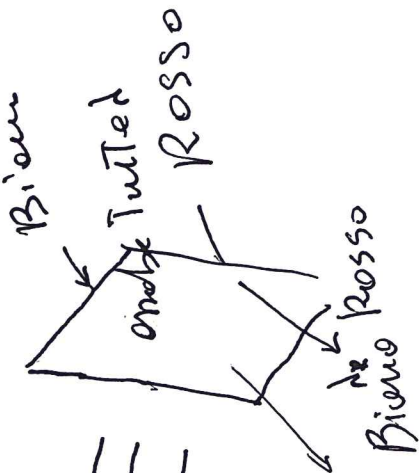
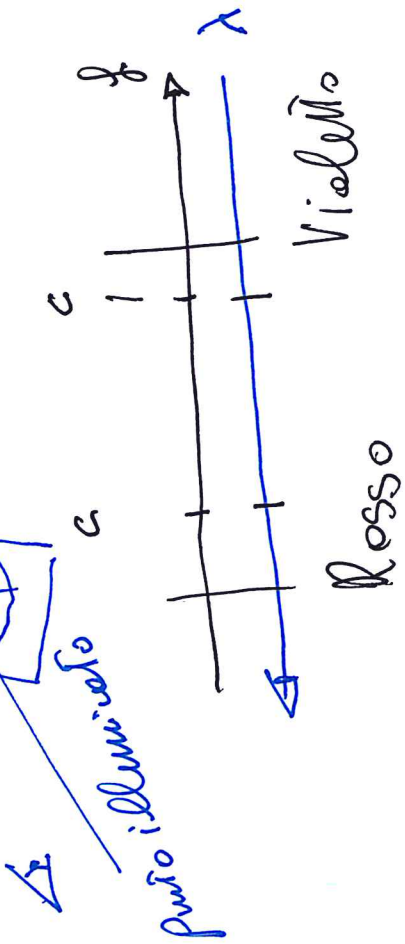
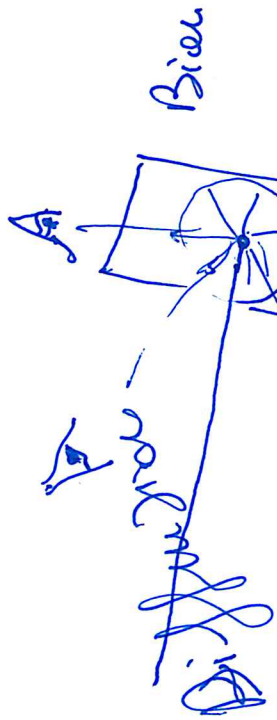
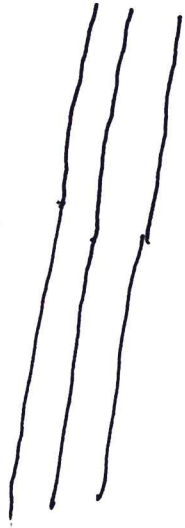


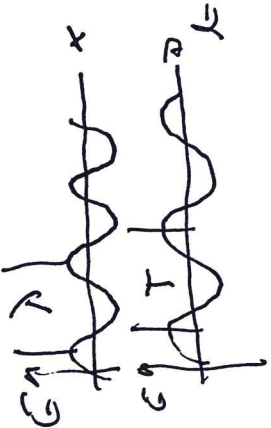
2

Luce Visibile

Luce bianca

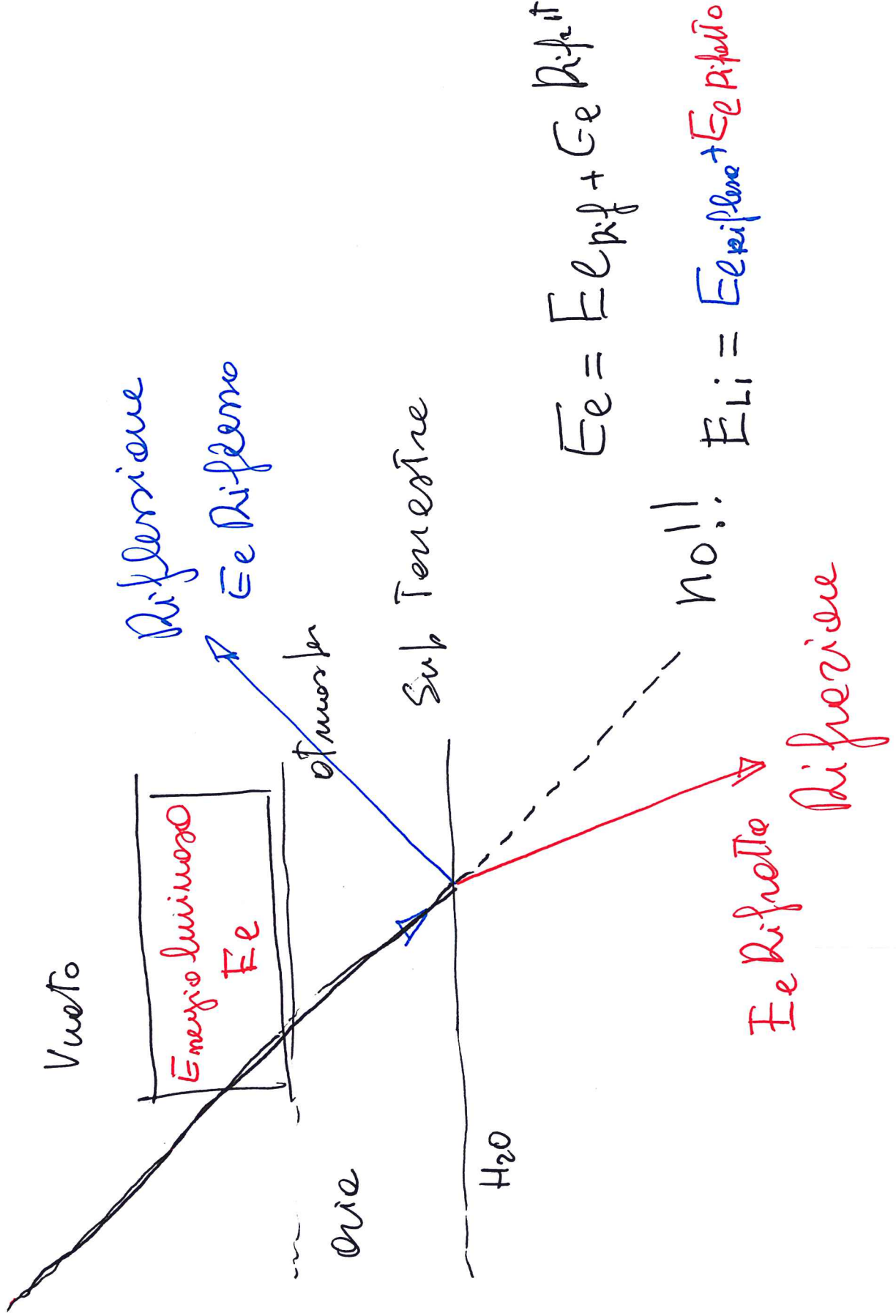


$$c = 3 \cdot 10^8 \text{ m/s}$$



$$c = \frac{\lambda}{T} = \lambda \cdot f$$

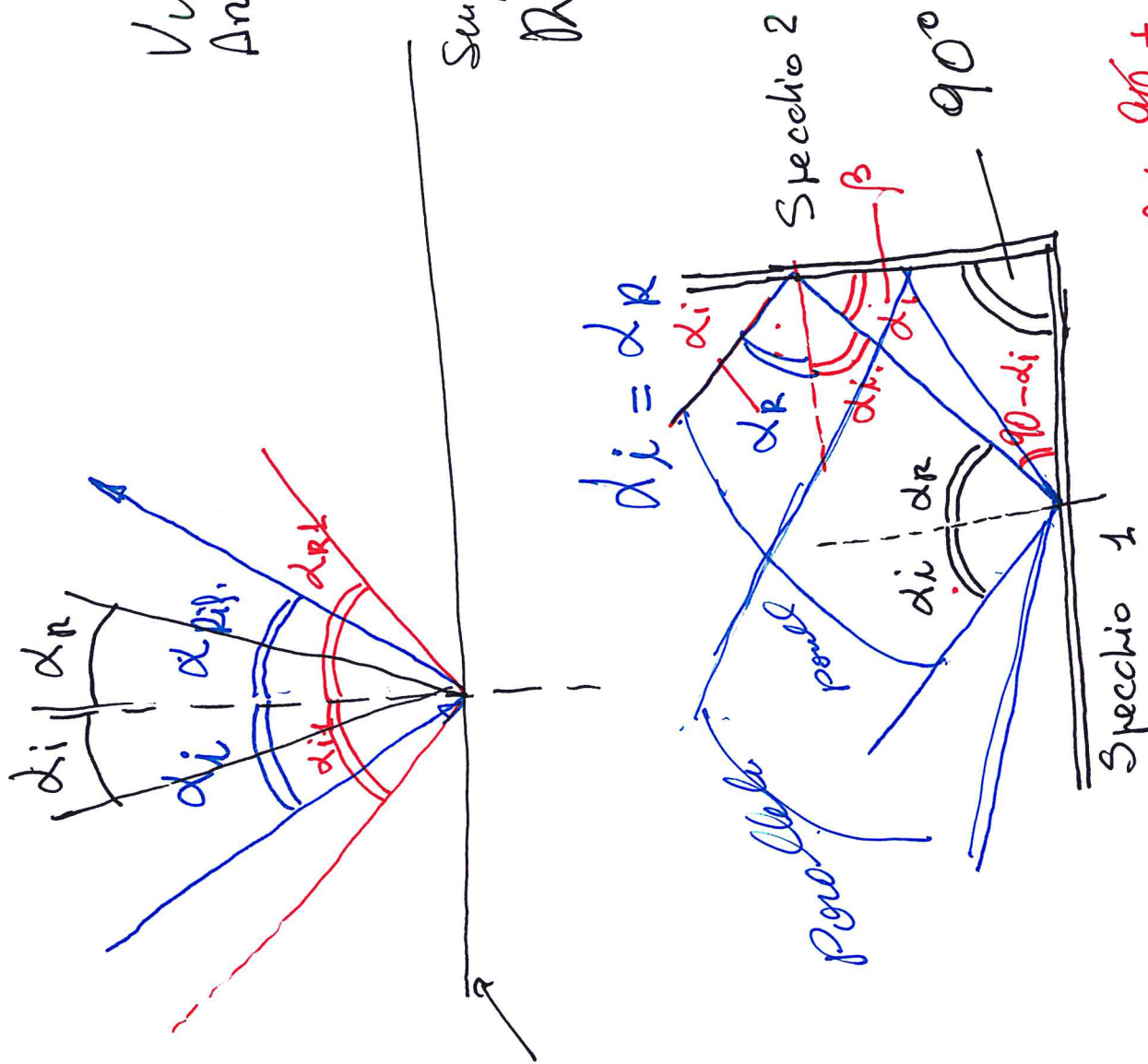
2





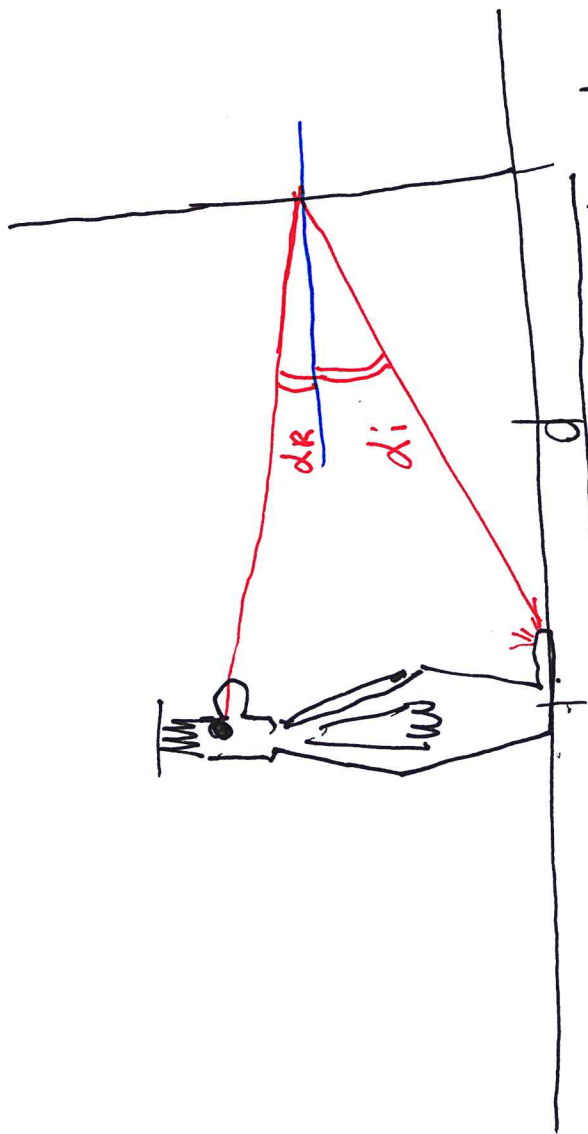
Vuoto
Arie

Superficie Difeseute



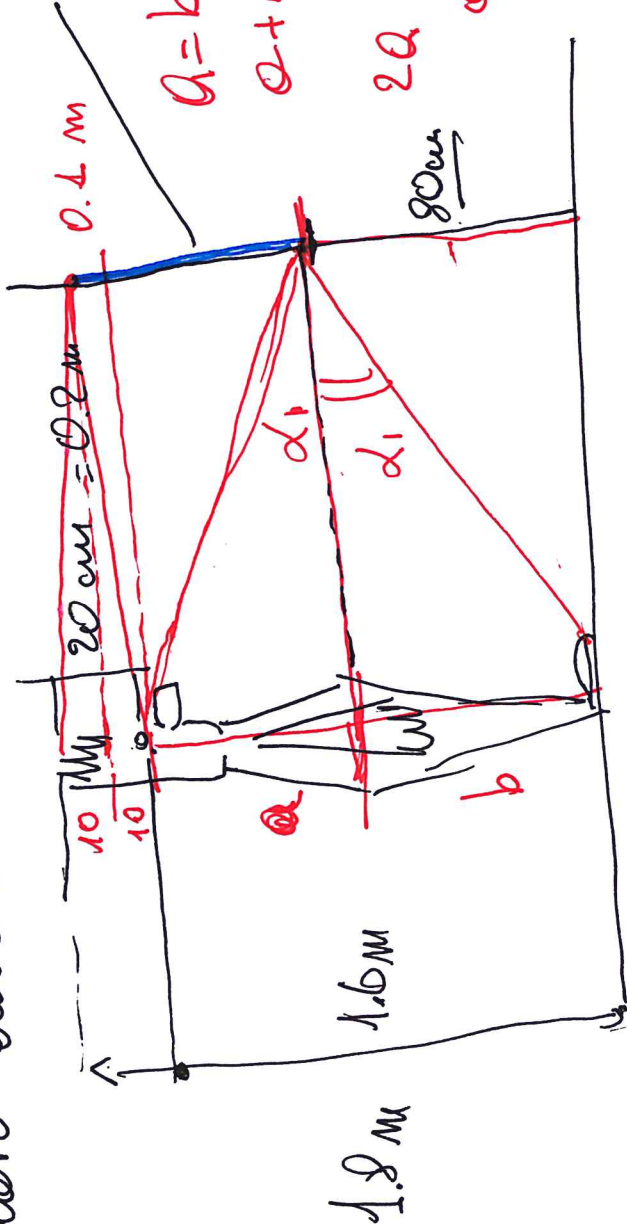
$$\beta + 90^\circ + 90^\circ - \alpha_1 = 180^\circ$$

4



Quanto deve essere alto lo specchio

$$h_{specchio} = 0.9 \text{ m}$$



5

aria vuoto

aria

$V = c = 3 \cdot 10^8 \text{ m/s}$

$v < c$

$v_{H_2O} = \frac{3}{4} c$

$v_{H_2O} = 0.75 \cdot c$

$= \frac{0.75 \cdot 3 \cdot 10^8}{1} \text{ m/s}$

$= 2.25 \cdot 10^8 \text{ m/s}$

$n_m = \frac{c}{v_m}$

Indice di Rifrazione

$$n_o = \frac{c}{c} = 1$$

$$n_{H_2O} = \frac{c}{\frac{3}{4}c} = \frac{4}{3} = 1.33$$

6

Vuoto

$$C = \lambda_{\text{vuoto}} \cdot f_{\text{vuoto}}$$

$$3 \cdot 10^8 \text{ m/s}$$

Mezzo

$$V_m = \lambda_{\text{mezzo}} \cdot f_{\text{mezzo}}$$

~~2,25 m/s~~

$$2,25 \text{ m/s} = \lambda_{\text{mezzo}} \cdot f_{\text{vuoto}}$$

f frequenza dipende dalla sorgente (sole)

λ lunghezza d'onda dipende dal mezzo!!

$$\lambda_1 < \lambda_0$$

$$\lambda_0$$

$$V_m = \lambda_m \cdot f_0$$

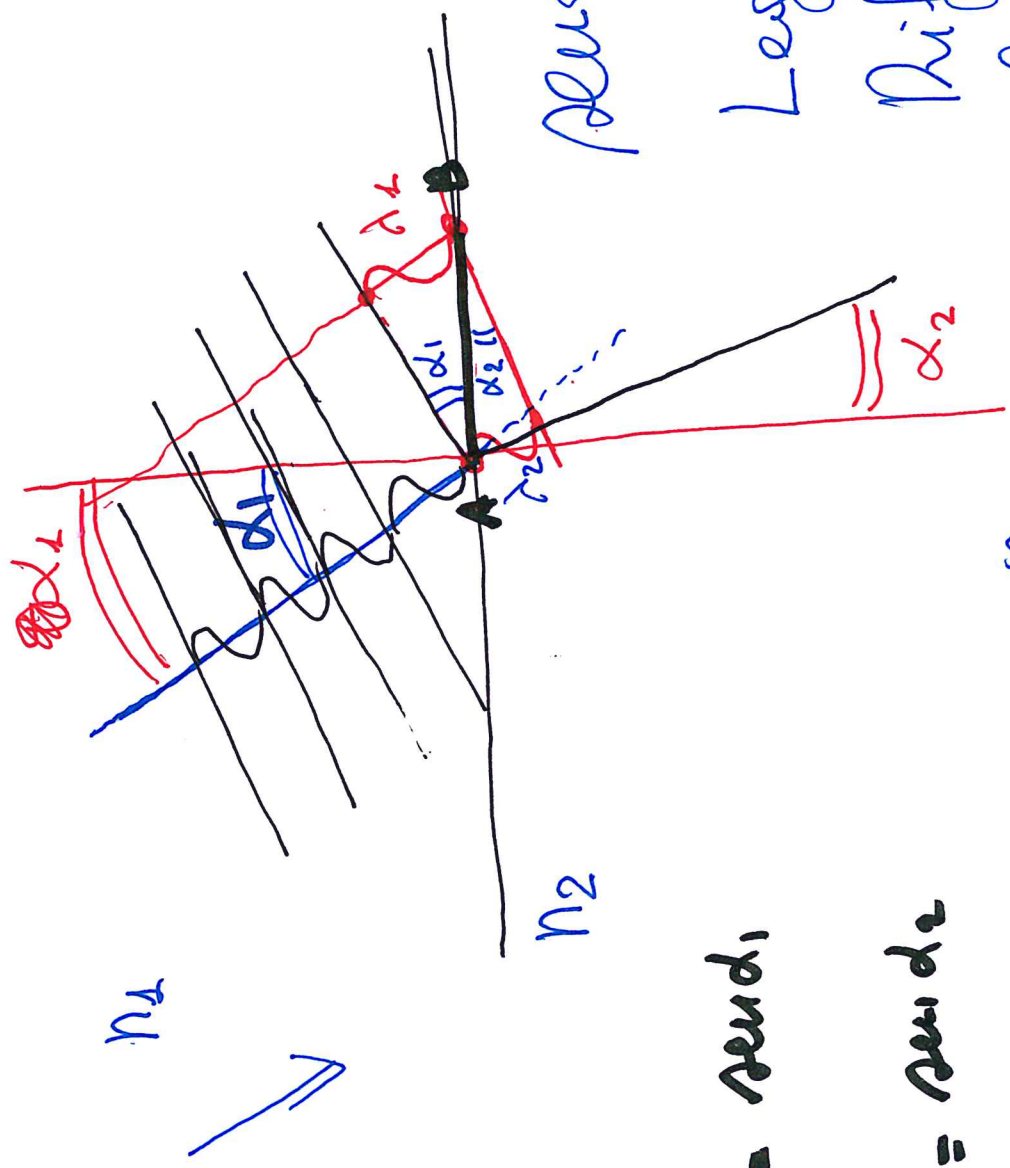
$$C = \lambda_0 \cdot f_0$$

$$\lambda_m = \frac{\lambda_0}{n_m}$$

$$\frac{\lambda_0}{\lambda_m} = n_m \Rightarrow$$

$$n_m = \frac{C}{V_m} = \frac{\lambda_0 \cdot f_0}{\lambda_m \cdot f_0} =$$

7



$$n_1 d_1 = n_2 d_2$$

$$\left\{ \begin{aligned} \frac{AB}{d_1} &= n_1 d_1 \\ \frac{A'B'}{d_2} &= n_2 d_2 \end{aligned} \right.$$

$$\frac{AB}{d_1} = \frac{n_2 d_2}{d_2}$$

$$n_1 d_1 = n_2 d_2$$

Legge di Snell

Rifrazione della
Luce!!

$$n_1 \sin \alpha_1 = n_2 \sin \alpha_2$$

$$\frac{n_1 \sin \alpha_1}{n_2 \sin \alpha_2} = \frac{v_1}{v_2} = \frac{c}{c} = \frac{n_2}{n_1}$$

SNELL

8

Vuoto
aio

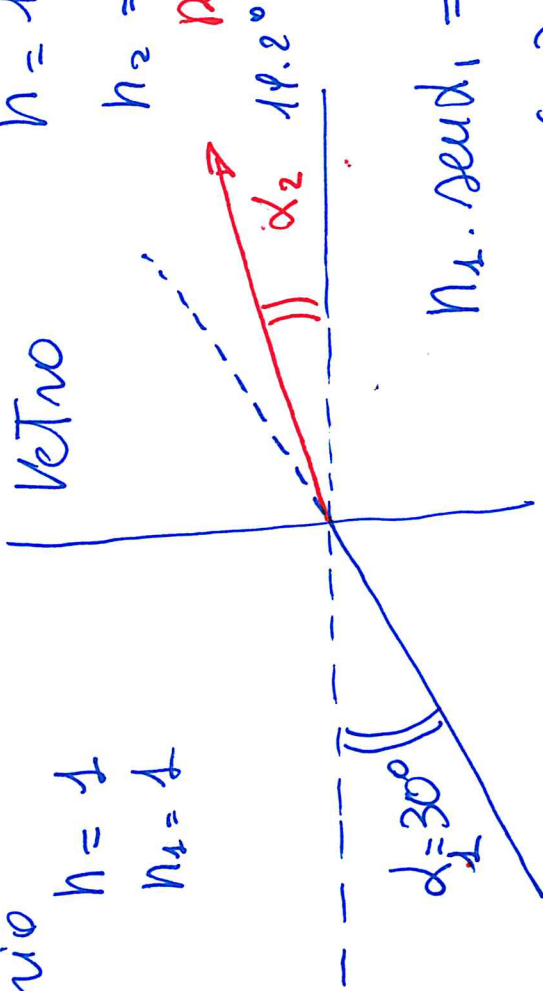
$$n = 1$$

$$n_1 = 1$$

$$n = 1.52$$

$$n_2 = 1.52$$

Rifratto



$$n_1 \cdot \sin \alpha_1 = n_2 \cdot \sin \alpha_2$$

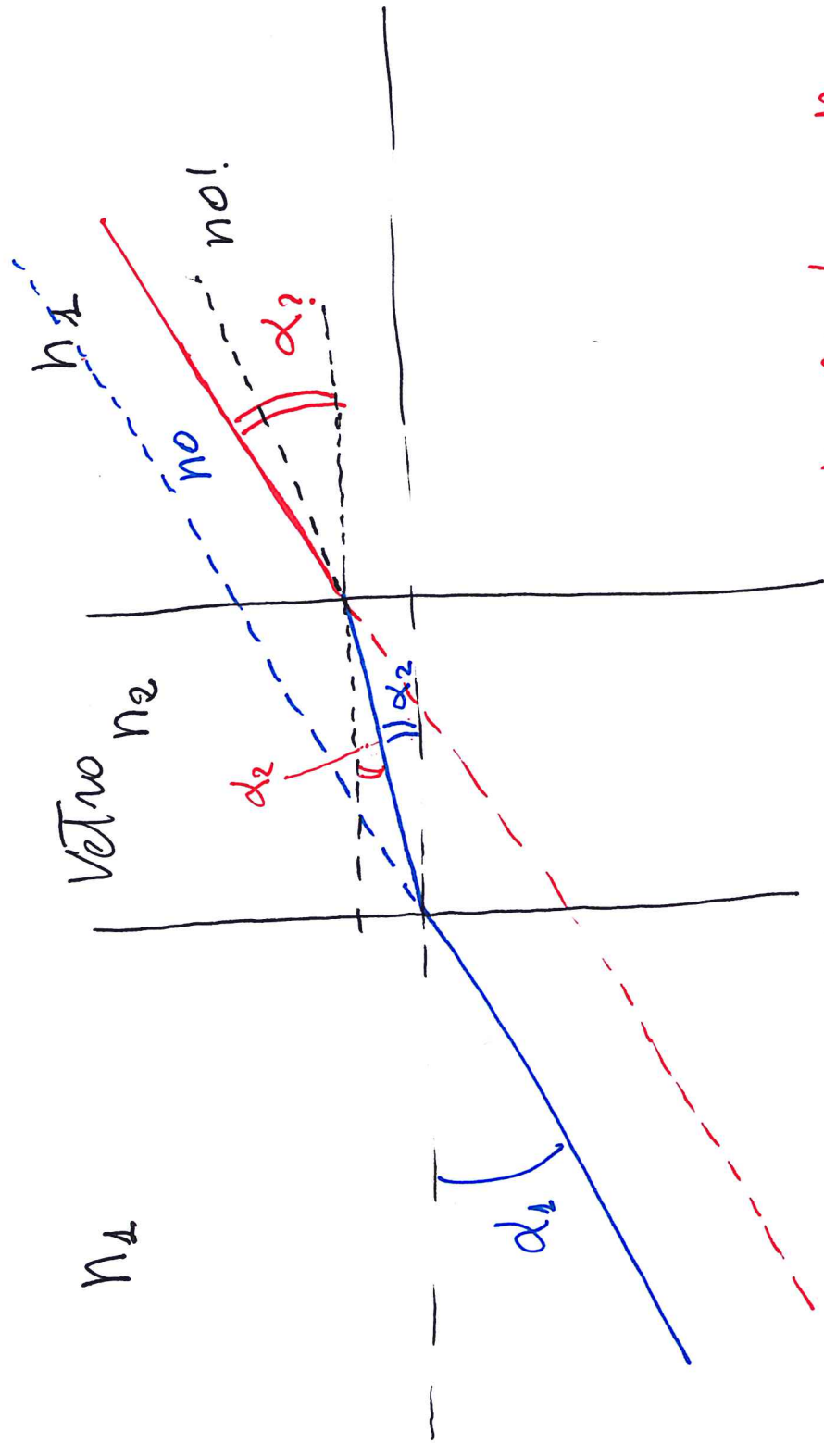
$$1 \cdot \sin(30) = 1.52 \cdot \sin \alpha_2$$

$$0.5 = 1.52 \cdot \sin \alpha_2$$

$$\sin \alpha_2 = \frac{0.5}{1.52} = 0.329$$

$$\alpha_2 = \arcsin(0.329)$$

$$\alpha_2 = 19.2^\circ$$



$$n_1 \cdot \sin \alpha_1 = n_2 \cdot \sin \alpha_2 \quad \leftarrow \quad n_2 \cdot \sin \alpha_2 = n_1 \cdot \sin \alpha_1$$

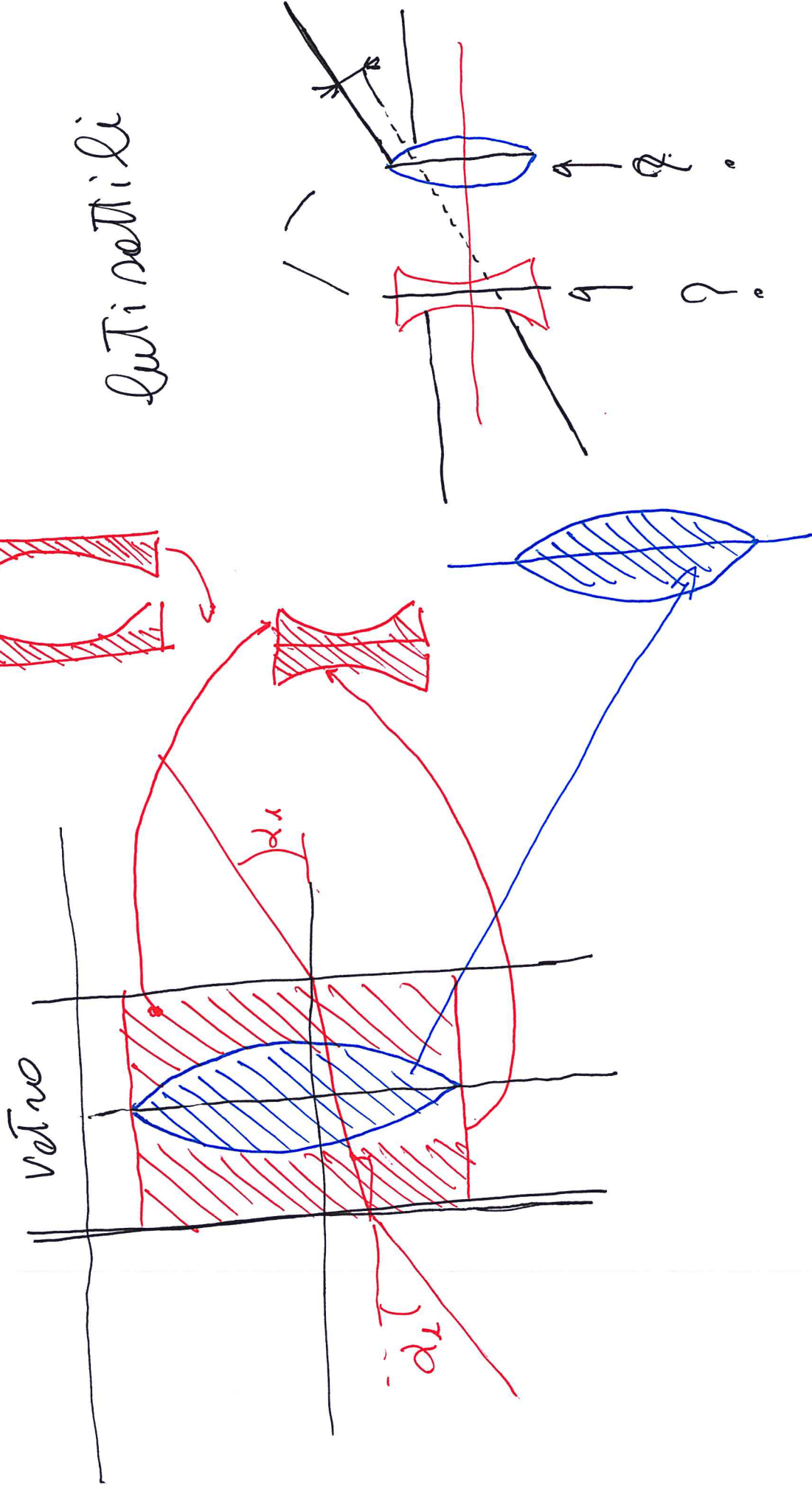
in entrata nel
Vetro

in uscita dal
Vetro

$$\cancel{n_1 \sin \alpha_1} = \cancel{n_1 \sin \alpha_1} \quad \alpha_i = \alpha_r$$

SCOMPOSIZIONE DI UN VETRO A FACC E PARALL IN UNA COPPIA DI LENTI SOTTILI

10



DIOTTRO SFERICO COME MODELLO DELL'OCCHIO UMANO

