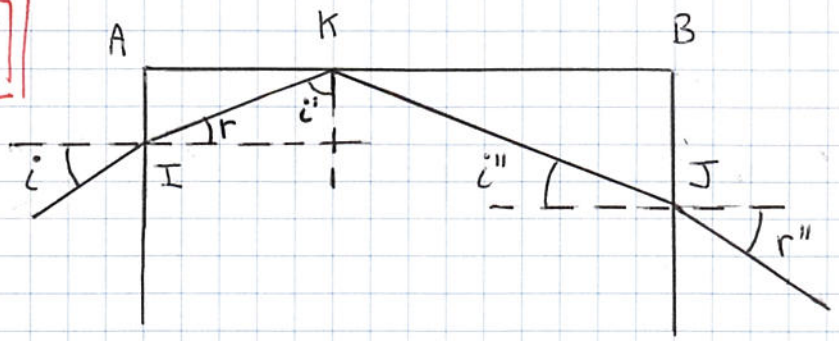


I] Refraction - Reflexion

7,5



1) $\sin i = n \sin r$ (1)

$r = 19,47^\circ$ (0,5)

2) $r + \frac{\pi}{2} + i' = \pi$

(1) $i' = \frac{\pi}{2} - r = 70,53^\circ$ (0,5)

3) Il n'ya pas de rayon refracté en K car $i' > i_{lim} =$ il ya reflexion totale (1)

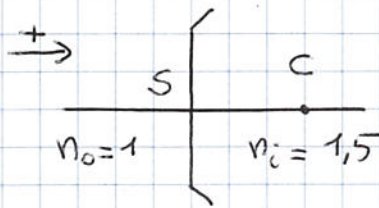
$n \sin i_{lim} = 1$ $i_{lim} = 41,81^\circ$ (1)

4) $i' + \frac{\pi}{2} + i'' = \pi$ (1) $i'' = \frac{\pi}{2} - i' = r = 19,47^\circ$ (0,5)

5) il ya bien un rayon refracté ($i'' < i_{lim}$) $r'' = i'' = 30^\circ$ (0,5)

II] Dioptre sphérique

12,5



1) $V = \frac{n_i - n_0}{SC} = 10 \text{ D}$ (1)

2) $f_i = \overline{SF_i} = \frac{n_i}{V} = 0,15 \text{ m}$ (0,5) (1)

$f_o = \overline{SF_o} = -\frac{n_0}{V} = -0,1 \text{ m}$ (0,5) (1)

3) $\frac{n_i}{SA_i} - \frac{n_0}{SA_o} = V$ (1)

$\overline{SA_i} = \frac{n_i}{V + \frac{n_0}{SA_o}} = -0,15 \text{ m}$ (1)

avec $\overline{SA_o} = -0,05 \text{ m}$

4) $G_L = \frac{n_0}{n_i} \frac{\overline{SA_i}}{\overline{SA_o}} = 2$ (1)

