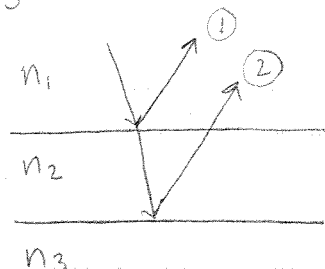


$$n_1 = 1.00$$

$$n_2 = 1.29$$

$$n_3 = 1.33$$



$$\lambda_1 = 600 \text{ nm} = 600 \times 10^{-9} \text{ m}$$

$n_2 > n_1$ so Ray 1 is 180° out of phase

$n_3 > n_2$ so Ray 2 is 180° out of phase

Net result is 2 rays in phase

Find v in oil:

$$n_2 = \frac{c}{v_2}$$

$$(1.29) = \frac{c}{v_2}$$

$$v_2 = 2.3 \times 10^8 \text{ m/s}$$

Find λ in oil

$$f \text{ is constant so: } \frac{v_1}{\lambda_1} = \frac{v_2}{\lambda_2} \quad \frac{(3 \times 10^8 \text{ m/s})}{(600 \times 10^{-9} \text{ m})} = \frac{(2.3 \times 10^8 \text{ m/s})}{\lambda_2}$$

$$\lambda_2 = 465 \text{ nm}$$

Find t :

For constructive int. on in phase rays: $m = 1, 2, \dots$

$$2 \cdot t = m \cdot \lambda_2$$

$$2 \cdot t = (1) \cdot (465 \text{ nm})$$

$$t = 233 \text{ nm}$$