10-11-13

1

4C

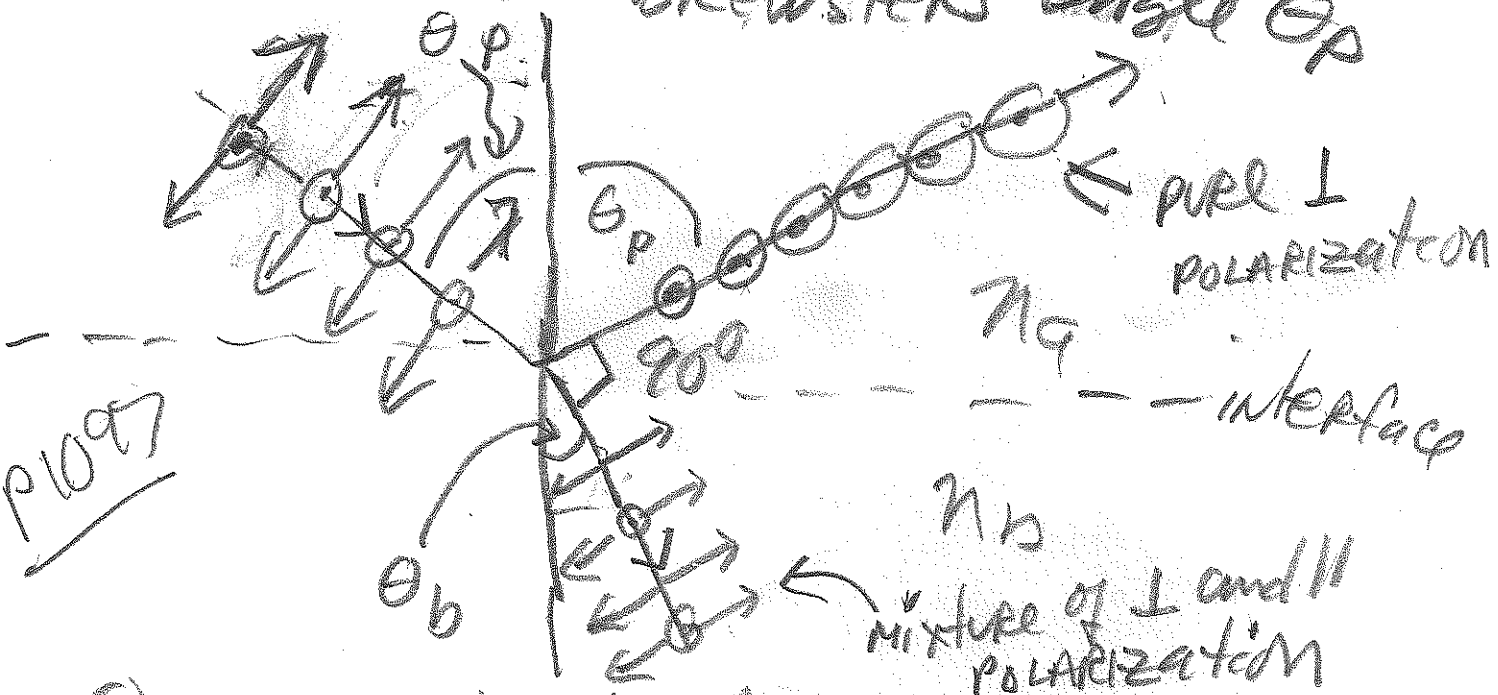
4C test 2 review

lecture notes:

| Date | CH | TOPIC | problem |
|---|---|---|---|
| 8-30 | 16 | $v = \sqrt{\frac{\gamma RT}{M}}$ | speed of sound calculation example 16.4 |
| 9-11 | 17 | $H_2O$ PHASE DIAGRAM calculations ($H_2O$) | phase diagram calculations |
| 9-18 | 16 | $DB = 10 \log\left(\frac{I}{I_0}\right)$ | FIRE WORKS problem & sample TEST C. |
| 9-20 | 16 | test 1 solutions | #5 solution (E.C.) |
| 9-23 | 32 | Lecture E&M waves | E&M THEORY |
| 10-7 | 32 | WIND sail problem | SAMPLE TEST 2 PROBLEM |
| 10-11 | 33 | #6 and #58 CH 33 | |

# CH 3

## POLARIZATION BY REFLECTION: BREWSTERS angle $\theta_p$




PLOT

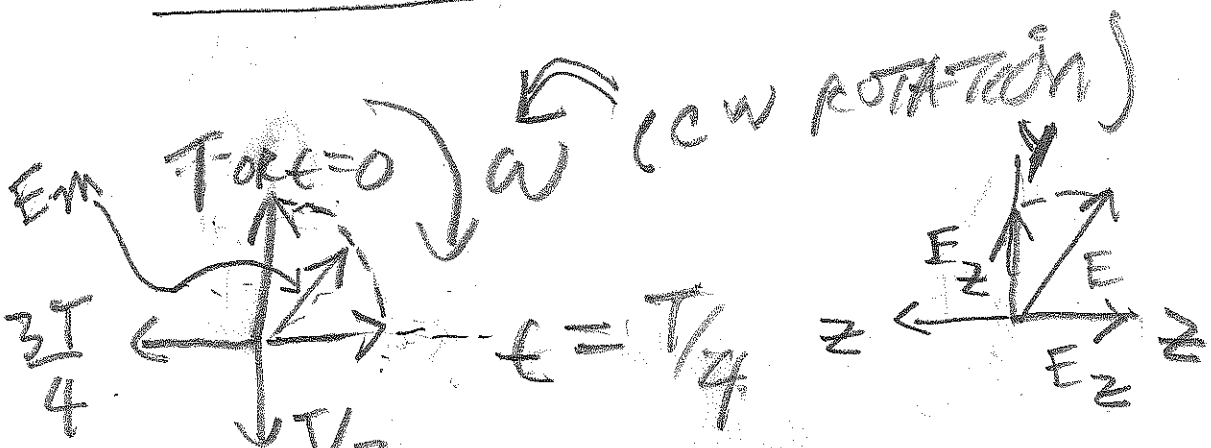
⊙ means $\vec{E}$ vibrates ⊥ PAGE (and // INTERFACE)

" $\vec{E}$ " // PAGE

$\theta_p$ = POLARIZATION (BREWSTERS angle)

analog: ROCKS SKIPPING on WATER

# CIRCULAR POLARIZATION




$$E_y = E_m \sin(90^\circ - \omega t)$$

$$E_z = -E_m \cos(90^\circ - \omega t)$$

} circular polarized light: $E_y$ and $E_z$ are $\frac{\pi}{2}$ ($=90^\circ$) out of phase.

note: $90 = \pi/2$

$\omega = \frac{2\pi}{T} \cdot f$ ; T = period

note $E_y^2 + E_z^2 = E_m^2$

$$E_m = \sqrt{E_y^2 + E_z^2}$$

# Huygens principle

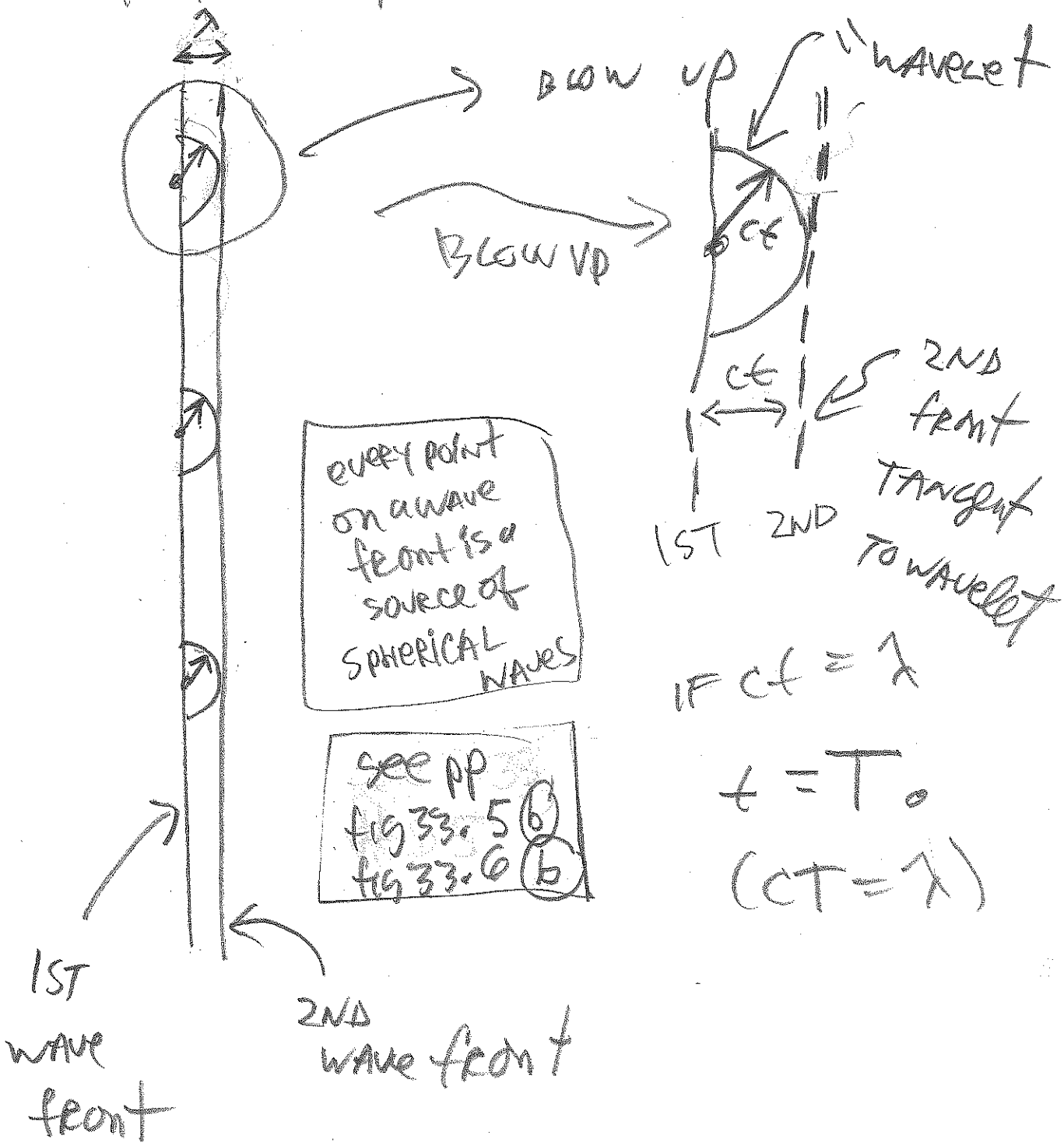
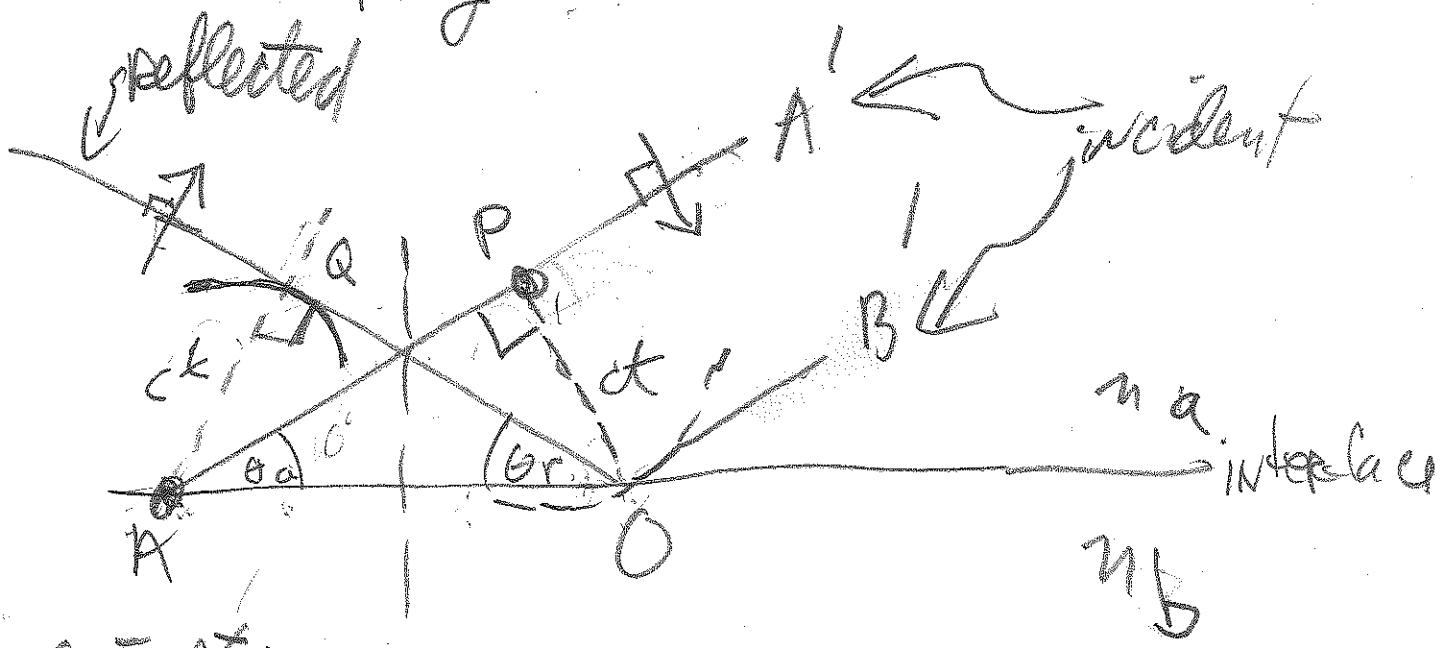


fig 33.35 (c)




$\cos\theta_r = \frac{CC'}{AO}$

$\cos\theta_a = \frac{ct}{AO}$

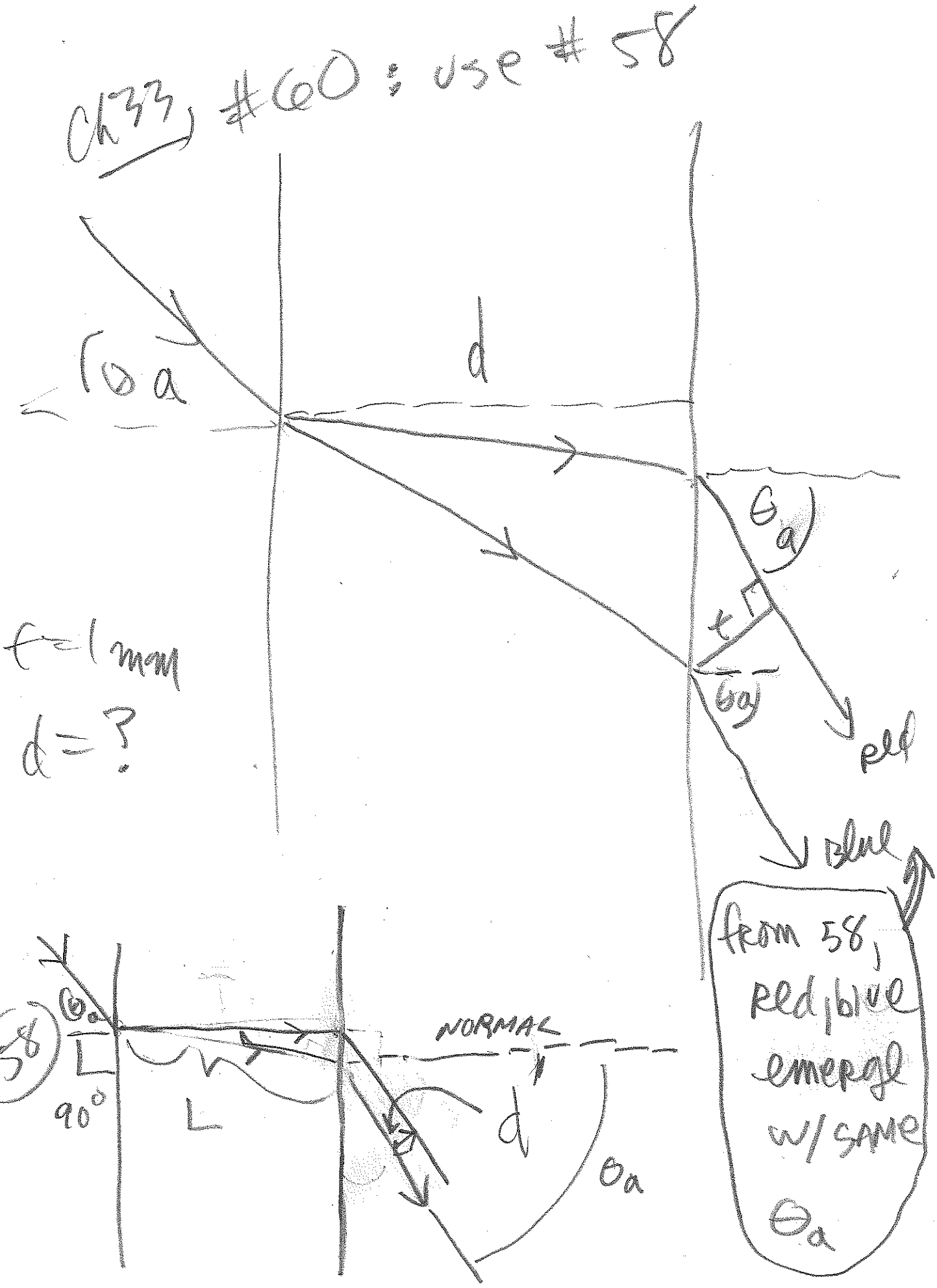
NORMAL

$\frac{\cos\theta_r}{\cos\theta_a} =$ | LOOK at THIS for 10 MINUTES; you can show $\theta_a = \theta_r$ (Law of reflection)

$\boxed{\theta_a = \theta_r}$

after that, study fig. 33.36 (d)

Ch 33, #60 : use # 58



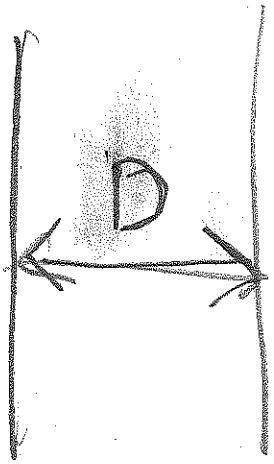
# 33.60

use #58, subtract both d's

$$\epsilon = \left| d'_{blue} - d'_{red} \right| \equiv 1\,mm.$$

FIND D such that:

$$\left| d'_{blue} - d'_{red} \right| = 1\,mm.$$




D = THICKNESS