

Things I owe you

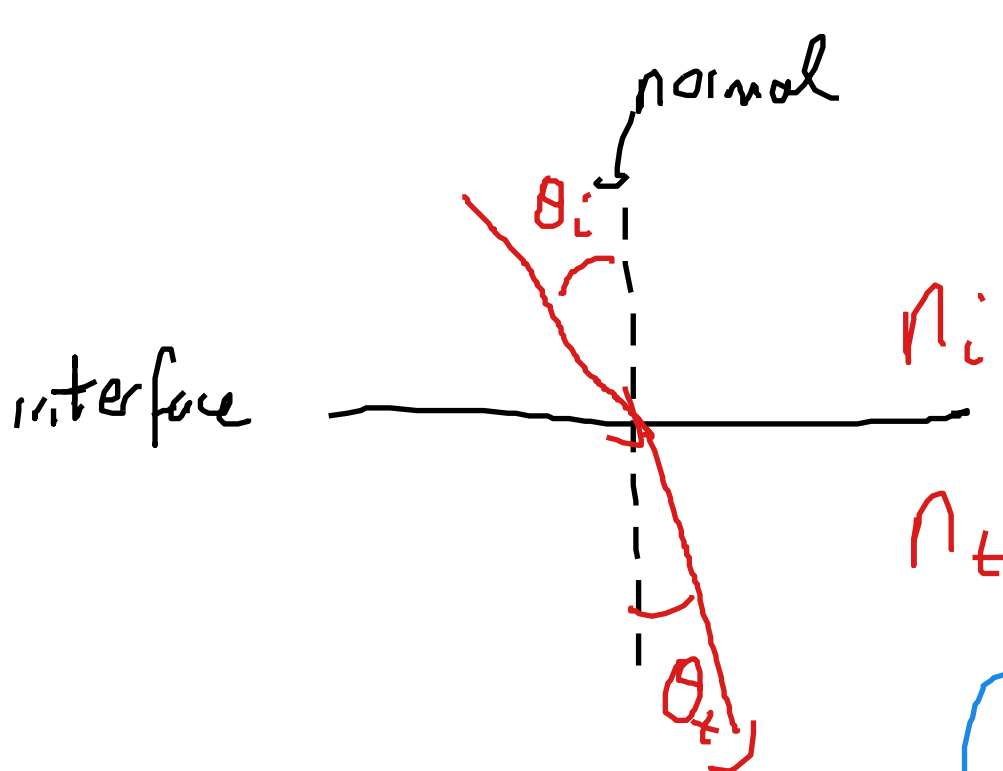
- Review outline
 - Sample exam
- } Monday afternoon
- Updated grades
 - One last HW ← Monday due next Monday night?
 - Graded exams - tomorrow

Things You Owe Me

- Final exam survey

Snell's Law

$$n_i \sin \theta_i = n_t \sin \theta_t$$



$$n = \frac{c}{v}$$

In this figure,

which is larger, n_i or n_t ?

θ_t smaller,
 n_t larger

is the light speeding up or slowing down?

• n bigger $\rightarrow v$ smaller

• towards the normal - slowing down

$$\sin \theta_t = \frac{n_i}{n_t} \sin \theta_i$$

if this is > 1

then no solution

for θ_t .

only occurs if $\frac{n_i}{n_t} > 1$

$$n_i > n_t$$

light is speeding up

Critical Angle : minimum angle
where this occurs is when

$$\theta_t = 90^\circ$$

$$1 = \frac{n_i}{n_t} \sin \theta_c$$

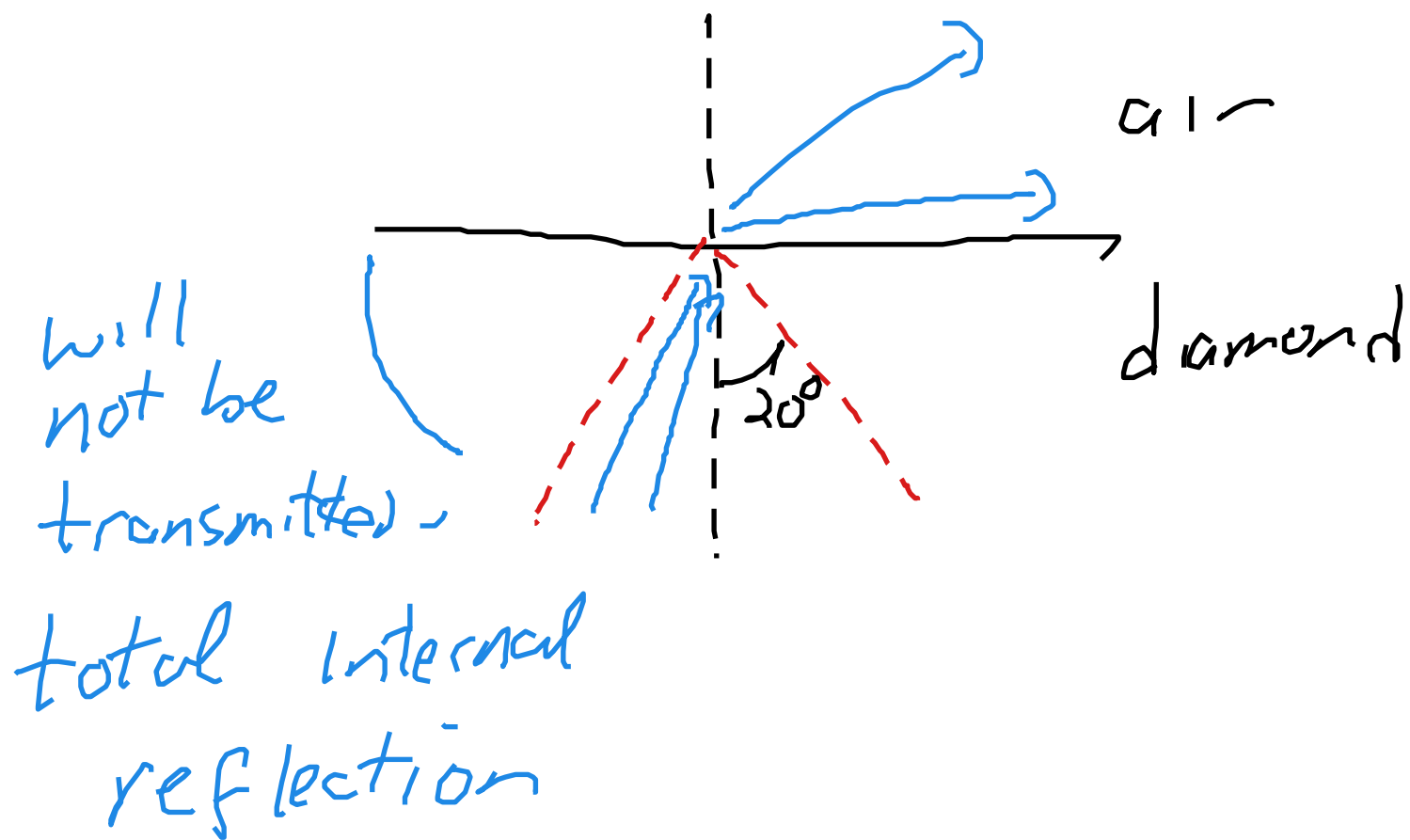
$$\theta_c = \sin^{-1} \frac{n_t}{n_i}$$

only works if $n_t < n_i$

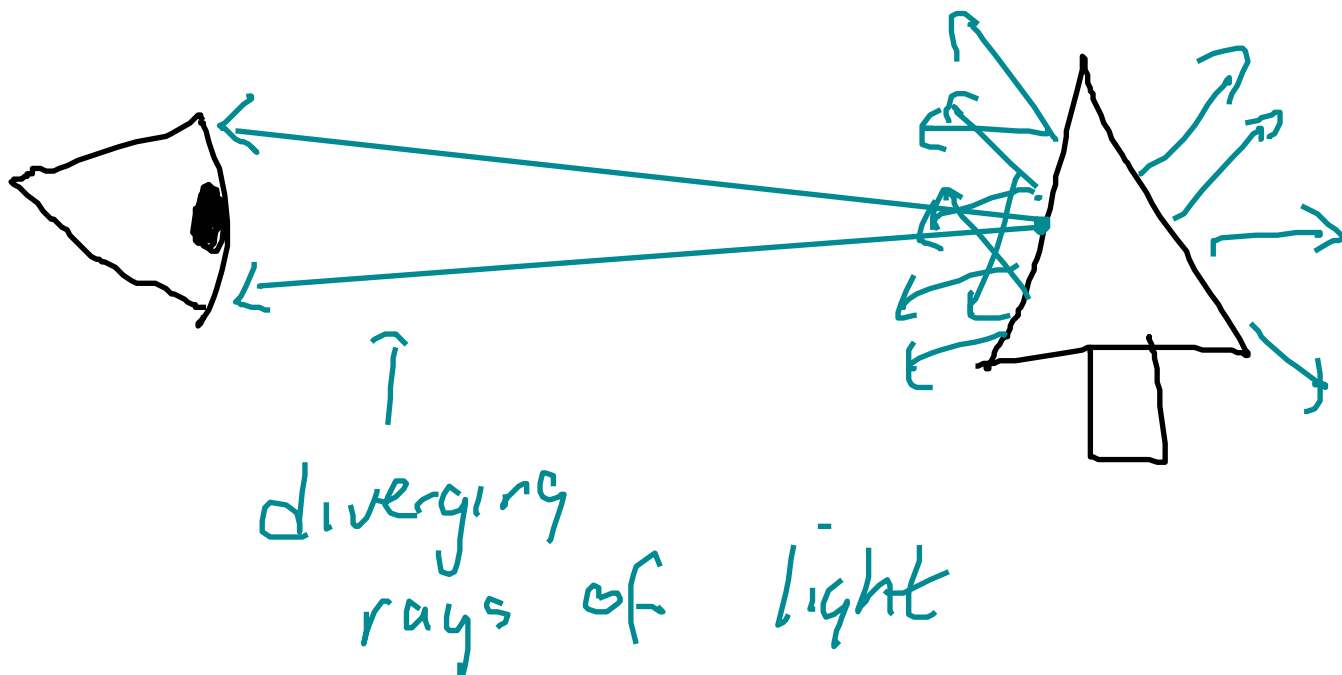
e.g. $n_i = 2.4$ diamond
 $n_t = 1$ air

$$\theta_c = \sin^{-1} \frac{1}{2.4}$$

$$= 24.6^\circ$$



How We See

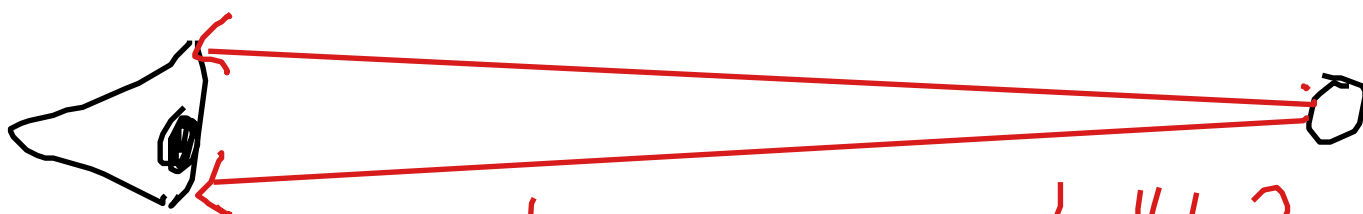


When our eye sees diverging rays, it traces them back to a single point and sees something there.

Eye assumes this is an object.



diverge a lot?
object is close



diverge a little?
object is far away



parallel rays =
 ∞ far away

But what my eye
really sees is an
image, which might not
be the original object
flat mirror

