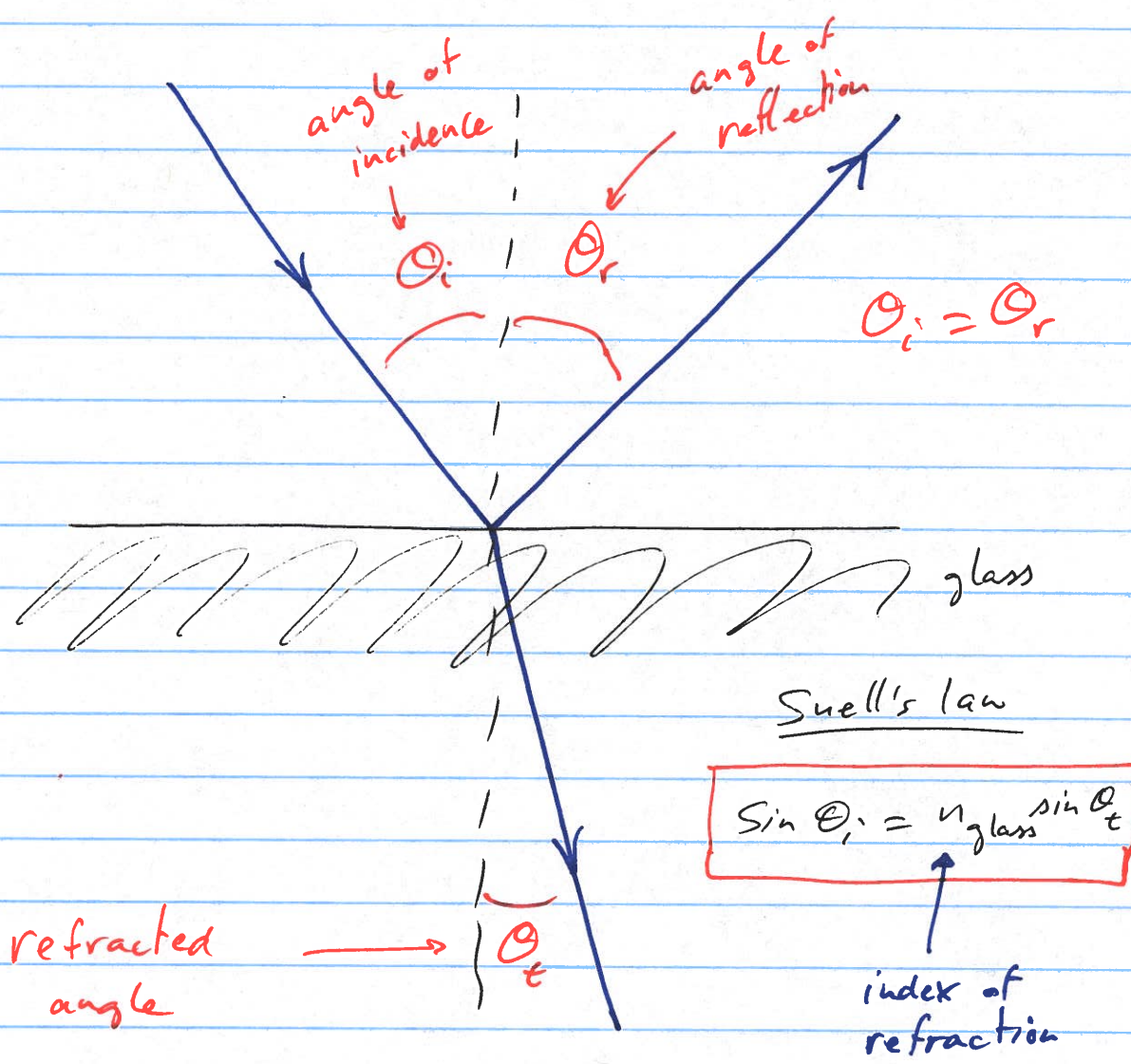


Wednesday, September 16, 2020

Basic Physics of Reflection & Refraction



$n_{\text{glass}} \approx 1.5$

note: $c_{\text{glass}} = \frac{c_{\text{vacuum}}}{n_{\text{glass}}}$

Example: Angular resolution of the Gemini telescopes

$$\text{Diameter} = 8.1 \text{ m}$$

$$\text{Optical wavelength} = 500 \text{ nm} \quad (\text{green})$$

(center of visible)

formula:

$$\theta_{\text{min, arcseconds}} = 0.000252 \frac{\lambda_{\text{nm}}}{D_{\text{m}}}$$

$$= 0.000252 \frac{500}{8.1}$$

$$= 0.016 \text{ arcseconds}$$

$$\Rightarrow \theta_{\text{min, arcseconds}} \Big|_{\text{Gemini}} = 16 \text{ mas}$$