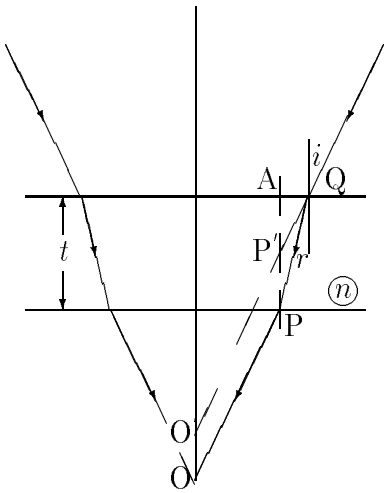

Figure 1:

The angle $\widehat{APQ}$ is the angle of refraction r,

$$\text{so } sinr = \frac{AQ}{PQ}$$

The angle $\widehat{AP'Q}$ is the angle of incidence i.

$$\text{so } sini = \frac{AQ}{P'Q}$$

herefore $n = \frac{AQ}{P'Q} / \frac{PQ}{AQ} = \frac{PQ}{P'Q}$

If i, r are small,

$n = AP/AP'$