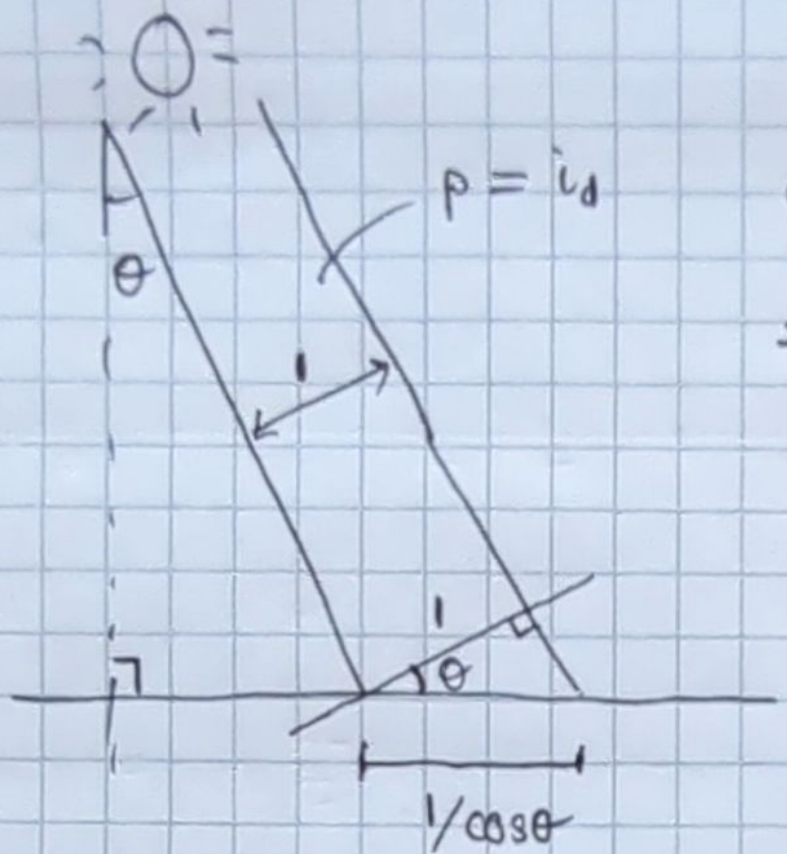
2.1



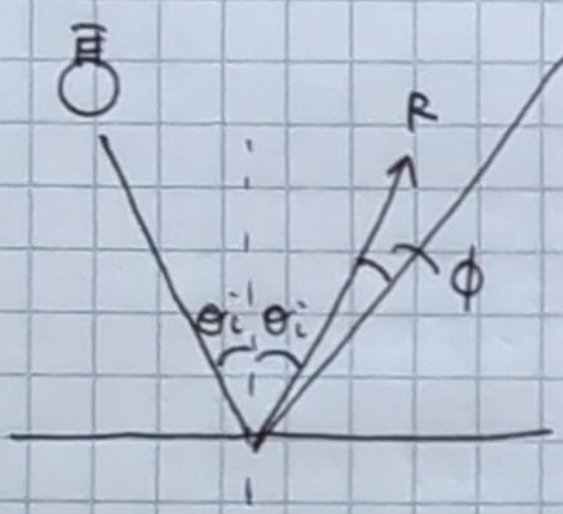
$p = i_d$ at surface light power / length

$= P / 1/\cos\theta = P\cos\theta$

$$I_d = k_d\, i_d \cos\theta$$

I_d observed intensity; k_d diffuse reflection coeff.

2.2

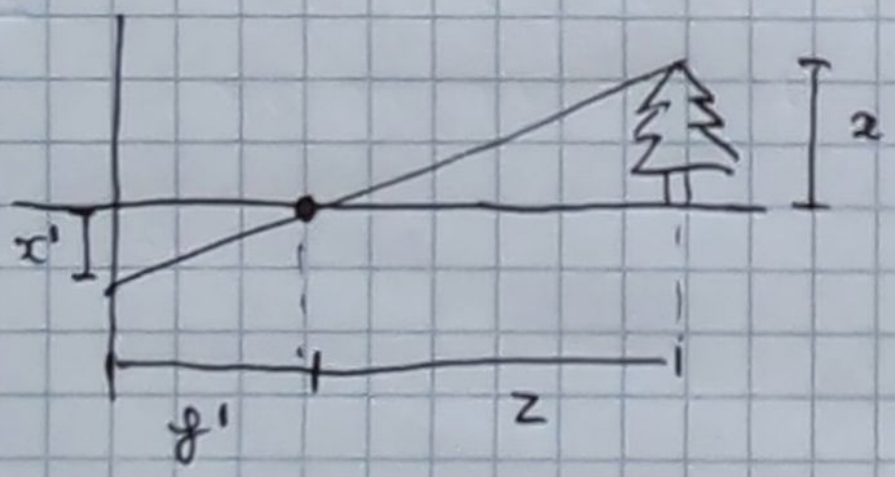


α = shininess

$$I_s = k_s\, i_s \cos^{\alpha}\phi$$

k_s specular refl coeff; i_s specular light power

2.3



$$\frac{x'}{y'} = \frac{x}{z}$$

$$x' = y' \frac{x}{z}$$

$$y' = y' \cdot \frac{y}{z}$$

2.4

$$s\begin{pmatrix} x' \\ y' \\ 1 \end{pmatrix} = \begin{pmatrix} f' & 0 & 0 & 0 \\ 0 & f' & 0 & 0 \\ 0 & 0 & 1 & 0 \end{pmatrix} \begin{pmatrix} x \\ y \\ z \\ 1 \end{pmatrix}$$

$$sx' = f'x$$
$$sy' = f'y$$
$$s = z$$

$$sp' = C\,P$$

$$x' = f'\frac{x}{z}$$
$$y' = f'\frac{y}{z}$$