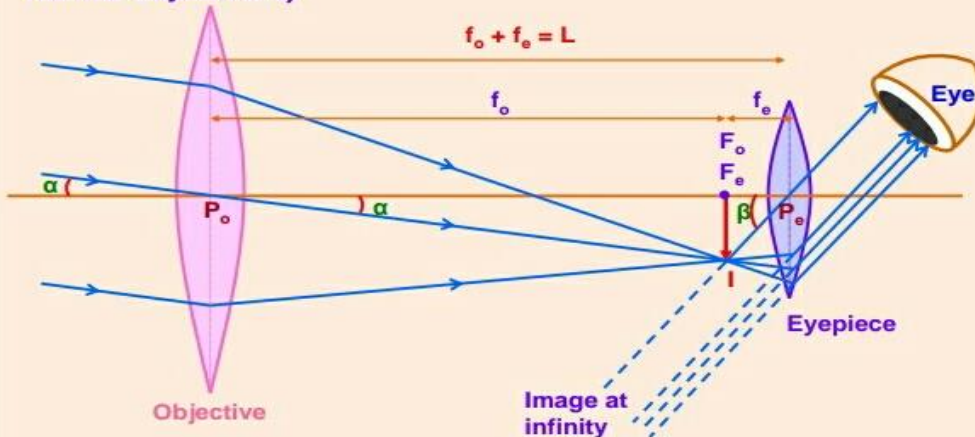


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Class 12Sc Sub Physics(Unit 06) Date 15 09 XX

Astronomical Telescope: (Image formed at infinity – Normal Adjustment)



Focal length of the objective is much greater than that of the eyepiece.
Aperture of the objective is also large to allow more light to pass through it.

Angular magnification or Magnifying power of a telescope in normal adjustment is the ratio of the angle subtended by the image at the eye as seen through the telescope to the angle subtended by the object as seen directly, when both the object and the image are at infinity.

$$M = \frac{\beta}{\alpha}$$

Since angles are small, $\alpha = \tan \alpha$ and $\beta = \tan \beta$

$$M = \frac{\tan \beta}{\tan \alpha}$$

$$M = \frac{F_o I}{P_o F_o} / \frac{F_e I}{P_e F_e}$$

$$M = \frac{-I}{-f_e} / \frac{-I}{f_o}$$

$$M = \frac{-f_o}{f_e}$$

($f_o + f_e = L$ is called the length of the telescope in normal adjustment).