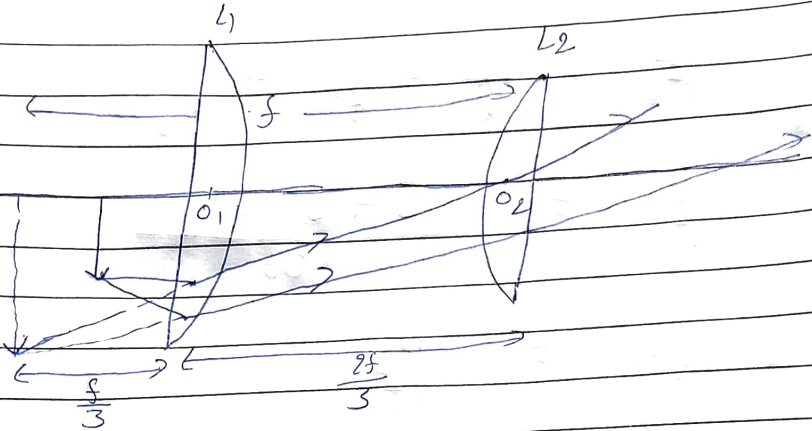


RAMSDEN EYEPIECE



Spherical aberration \rightarrow

$$d = f_1 - f_2$$

$$f_1 = f \quad f_2 = f$$

$$d = f - f = 0$$

Spherical aberration is present in Ramsden eyepiece.

chromatic aberration \rightarrow

$$d = \frac{f_1 + f_2}{2}$$

chromatic aberration $f_1 = f \quad f_2 = f$

$$d = \frac{f + f}{2} = f$$

is present in Ramsden eyepiece

Mean focal length (F)

$$\frac{1}{F} = \frac{1}{f_1} + \frac{1}{f_2} - \frac{d}{f_1 f_2}$$

$$\frac{1}{F} = \frac{1}{f} + \frac{1}{f} - \frac{2f}{3f^2}$$

$$\frac{1}{F} = \frac{3 + 3 - 2}{3f}$$

$$\frac{1}{F} = \frac{4}{3f}$$

$$\therefore F = \frac{3}{4} f$$