

Let:

$$M = 25$$

$$l = 65 \text{ cm}$$

$$f_0 = ?, f_e = ?$$

The magnification of telescope is:

$$M = \frac{f_0}{f_e}$$

Where f_0 is the focal length of the objective lens and f_e is the focal length of the eyepiece.

Make a system of equations:

$$\begin{cases} f_0 + f_e = l \\ \frac{f_0}{f_e} = M \end{cases} \cong \begin{cases} f_0 + f_e = 65 \\ \frac{f_0}{f_e} = 25 \end{cases}$$

Solution of system is:

$$f_0 = 62.5 \text{ cm}$$

$$f_e = 2.5 \text{ cm}$$

Answer: The focal lengths of the lenses are: $f_0 = 62.5 \text{ cm}$, $f_e = 2.5 \text{ cm}$