

A lens of 80cm f.l. is used as the objective for a 2 lens terrestrial telescope. What focal length lens is used to achieve a power of 50?

Telescope magnification is:

$$M = \frac{F}{f}$$

where F is the focal length of the objective lens and f is the focal length of the eyepiece.

We can find the focal length of the eyepiece:

$$f = \frac{F}{M} = \frac{80cm}{50} = 1.6cm$$

Answer: $f = 1.6cm$