

18. Let the diameter of the Sun be d_s and that of the image be d_i . Then, Eq. 35-5 leads to

$$\begin{aligned}d_i &= |m|d_s = \left(\frac{i}{p}\right)d_s \approx \left(\frac{f}{p}\right)d_s \\&= \frac{(20.0 \times 10^{-2} \text{ m})(2)(6.96 \times 10^8 \text{ m})}{1.50 \times 10^{11} \text{ m}} \\&= 1.86 \times 10^{-3} \text{ m} = 1.86 \text{ mm} .\end{aligned}$$