

22. We solve Eq. 35-9 for the image distance:

$$i = \left(\frac{1}{f} - \frac{1}{p} \right)^{-1} = \frac{fp}{p - f} .$$

The height of the image is thus

$$h_i = mh_p = \left(\frac{i}{p} \right) h_p = \frac{fh_p}{p - f} = \frac{(75 \text{ mm})(1.80 \text{ m})}{27 \text{ m} - 0.075 \text{ m}} = 5.0 \text{ mm} .$$