

37. (a) Now, the lens-film distance is

$$i = \left(\frac{1}{f} - \frac{1}{p} \right)^{-1} = \left(\frac{1}{5.0 \text{ cm}} - \frac{1}{100 \text{ cm}} \right)^{-1} = 5.3 \text{ cm} .$$

(b) The change in the lens-film distance is $5.3 \text{ cm} - 5.0 \text{ cm} = 0.30 \text{ cm}$.