

73. In the case of a distant screen the angle  $\theta$  is close to zero so  $\sin \theta \approx \theta$ . Thus from Eq. 36-14,

$$\Delta\theta \approx \Delta \sin \theta = \Delta \left( \frac{m\lambda}{d} \right) = \frac{\lambda}{d} \Delta m = \frac{\lambda}{d} ,$$

or  $d \approx \lambda/\Delta\theta = 589 \times 10^{-9} \text{ m}/0.018 \text{ rad} = 3.3 \times 10^{-5} \text{ m} = 33 \mu\text{m}$ .