

36. We use Eq. 37-22 for diffraction maxima:  $d \sin \theta = m\lambda$ . In our case, since the angle between the  $m = 1$  and  $m = -1$  maxima is  $26^\circ$ , the angle  $\theta$  corresponding to  $m = 1$  is  $\theta = 26^\circ/2 = 13^\circ$ . We solve for the grating spacing:

$$d = \frac{m\lambda}{\sin \theta} = \frac{(1)(550 \text{ nm})}{\sin 13^\circ} = 2.4 \mu\text{m} .$$