

p 693 39, 41, 75

$$\textcircled{39} \quad 2dn = \left(m + \frac{1}{2}\right) \lambda$$

$$\lambda = \frac{2dn}{\frac{1}{2}} = \frac{2(120 \times 10^{-9} \text{ m})(1.34)}{\frac{1}{2}}$$

$$\lambda = 6.43 \times 10^{-7} \text{ m}$$

$\textcircled{41}$

$$2dn = m\lambda$$

$$d = \frac{\lambda}{2n} = \frac{480 \times 10^{-9} \text{ m}}{2(1.42)} = 1.69 \times 10^{-7} \text{ m}$$

$\textcircled{75}$

$$2dn = m\lambda$$

$$2dn = (m+1) 512 \times 10^{-9}$$

$$2dn = (m) 640 \times 10^{-9}$$

$$512 \times 10^{-9} \text{ m} + 512 \times 10^{-9} = 640 \times 10^{-9} \text{ m}$$
$$m = 4$$

$$d = \frac{m 640 \times 10^{-9}}{2n} = \frac{4(640 \times 10^{-9})}{2(1.58)}$$

$$= \underline{8.10 \times 10^{-7} \text{ m}}$$