

$$n = 1.5690$$

$$v = \frac{c}{n} = \frac{3 \times 10^8 \text{ m/s}}{1.5690}$$

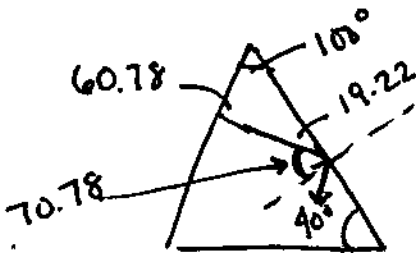
$$\underline{\underline{v = 1.912 \times 10^8 \text{ m/s}}}$$

- b. one ray is reflected at  $50^\circ$  from the normal (Law of Reflection)  
 another ray is refracted at  $29.22^\circ$  from normal

$$n_1 \sin \theta_1 = n_2 \sin \theta_2$$

$$1 \sin 50^\circ = 1.5690 \sin \theta \quad \theta = \sin^{-1} \left( \frac{\sin 50^\circ}{1.5690} \right)$$

$$\theta = 29.22^\circ$$



- c. one ray is reflected at  $70.78^\circ$  from the normal (Law of Reflection)

$$\text{no refraction} \quad \theta_{\text{crit}} = \sin^{-1} \left( \frac{1}{1.5690} \right) = 39.59^\circ$$

incident angle  $70.78^\circ$  is larger than  $\theta_{\text{crit}} 39.59^\circ$   
 so no refraction