\( n = 1.5690 \)
\[ \frac{V}{c} = \frac{3 \times 10^8 \text{ m/s}}{1.5690} \]
\[ V = 1.912 \times 10^8 \text{ m/s} \]

b. One ray is reflected at 50° from the normal (Law of Reflection).
Another ray is refracted at 29.22° from normal.

\[ n_1 \sin \Theta_1 = n_2 \sin \Theta_2 \]
\[ 1 \sin 50° = 1.5690 \sin \Theta \]
\[ \Theta = \sin^{-1} \left( \frac{\sin 50°}{1.5690} \right) \]
\[ \Theta = 29.22° \]

c. One ray is reflected at 70.78° from the normal (Law of Reflection).
No refraction. \( \Theta_{crit} = \sin^{-1} \left( \frac{1}{1.5690} \right) = 39.59° \)

Incident angle 70.78° is larger than \( \Theta_{crit} \) 39.59°,
so no refraction.