Question Number	Answer		Mark
11a	Angle of incidence measured from diagram in range 54-56(°) Use of $n_1\sin\theta_1 = n_2\sin\theta_2$ with their measured angle of incidence θ_2 = 30-32(°) Normal line drawn correctly at point of incidence Ray refracted towards normal <u>Example of calculation</u> Angle of incidence measured as 55° $n_1\sin\theta_1 = n_2\sin\theta_2$ so $1.00 \times \sin 55° = 1.58 \times \sin\theta_2$ $\theta_2 = \sin^{-1}\left(\frac{1.00 \times \sin 55°}{1.58}\right) = 31.2°$	(1) (1) (1) (1) (1)	**5**
11b	Use of $n = c/v$ with $c = 3.00 \times 10^8\ \text{m s}^{-1}$ Use of $\sin C = 1/n$ $C = 41°$ <u>Example of calculation</u> $n = \frac{c}{v} = \frac{3.00 \times 10^8 \text{ms}^{-1}}{1.96 \times 10^8 \text{ms}^{-1}} = 1.53$ $\sin^{-1}(C) = \frac{1}{1.53}$ so $C = 40.8°$	(1) (1) (1)	**3**
	Total for question 11		**8**