A prism is constructed of diamond ($n = 2.40$) with an apex angle of 25°. A pencil beam of light is incident to the base of the prism. Outside is air.

(a) Show which face, A or B, the light emerges from.
(b) Calculate the angle of the emergent beam from the normal to that face.
(c) Show on a clear drawing the direction of the emergent beam (which side of the normal it is on).

\[ \sin \Theta_{cr} = \frac{1}{n} \]
\[ \Theta_{cr} = 24.6° \]

If angle of incidence $\Theta > \Theta_{cr}$

\Rightarrow total internal reflection.

\( \Theta = 6.01° \)