8 **(a)** **(i)** Show that $\sin x \tan x + \cos x = \sec x$. [3]

(ii) Hence solve the equation $\sin\frac{\theta}{2}\tan\frac{\theta}{2} + \cos\frac{\theta}{2} = 4$ for $0 \leqslant \theta \leqslant 4\pi$, where θ is in radians. [4]

(b) Solve the equation $\cot(y + 38°) = \sqrt{3}$ for $0° \leqslant y \leqslant 360°$. [3]