

13.

In this question you must show all stages of your working.**Solutions relying entirely on calculator technology are not acceptable.**

(a) Show that

$$\frac{1}{\cos \theta} + \tan \theta \equiv \frac{\cos \theta}{1 - \sin \theta} \quad \theta \neq (2n + 1)90^\circ \quad n \in \mathbb{Z} \quad (3)$$

Given that $\cos 2x \neq 0$ (b) solve for $0 < x < 90^\circ$

$$\frac{1}{\cos 2x} + \tan 2x = 3 \cos 2x$$

giving your answers to one decimal place.

(5)