

13. (a) Show that

$$\operatorname{cosec} 2x + \cot 2x \equiv \cot x, \quad x \neq 90n^\circ, n \in \mathbb{Z} \quad (5)$$

(b) Hence, or otherwise, solve, for $0 \leq \theta < 180^\circ$,

$$\operatorname{cosec}(4\theta + 10^\circ) + \cot(4\theta + 10^\circ) = \sqrt{3}$$

You must show your working.

(Solutions based entirely on graphical or numerical methods are not acceptable.)

(5)