

3. (a) Prove that $\tan 15^\circ = 2 - \sqrt{3}$

(4)

(b) Solve, for $0 \leq \theta < 360^\circ$,

$$\sin(\theta + 60^\circ) \sin(\theta - 60^\circ) = (1 - \sqrt{3}) \cos^2 \theta$$

(8)