

(a) Express $5 \sin \theta + 12 \cos \theta$ in the form $R \cos \theta - \alpha$, where $R > 0$ and $0 < \alpha < \frac{1}{2}\pi$. [3]

(b) Hence solve the equation $5 \sin 2x + 12 \cos 2x = 6$ for $0 \leq x \leq \pi$. [4]