

9 (a) Express $3 \cos 2x + 4 \sin 2x$ in the form $R \cos(2x - \alpha)$, where $R > 0$ and $0^\circ < \alpha < 90^\circ$. **[3]**

(b) In this question you must show detailed reasoning.

Solve the equation $\frac{3 \cos 2x + 4 \sin 2x + 6}{3 \cos 2x + 4 \sin 2x - 1} = 4$ for $0^\circ < x < 360^\circ$. **[7]**