

(i) Express $8 \cos \theta - 15 \sin \theta$ in the form $R \cos(\theta + \alpha)$, where $R > 0$ and $0^\circ < \alpha < 90^\circ$, stating the exact value of R and giving the value of α correct to 2 decimal places. [3]

(ii) Hence solve the equation

$$8 \cos 2x - 15 \sin 2x = 4,$$

for $0^\circ < x < 180^\circ$.

[4]