

5 The function f is such that $f(x) = 2 \sin^2 x - 3 \cos^2 x$ for $0 \leq x \leq \pi$.

(i) Express $f(x)$ in the form $a + b \cos^2 x$, stating the values of a and b . [2]

(ii) State the greatest and least values of $f(x)$. [2]

(iii) Solve the equation $f(x) + 1 = 0$. [3]