

7 A function f is defined by $f : x \mapsto 3 - 2 \sin x$, for $0^\circ \leq x \leq 360^\circ$.

(i) Find the range of f . [2]

(ii) Sketch the graph of $y = f(x)$. [2]

A function g is defined by $g : x \mapsto 3 - 2 \sin x$, for $0^\circ \leq x \leq A^\circ$, where A is a constant.

(iii) State the largest value of A for which g has an inverse. [1]

(iv) When A has this value, obtain an expression, in terms of x , for $g^{-1}(x)$. [2]