

7 A function f is defined by $f : x \mapsto 3 - 2 \tan\left(\frac{1}{2}x\right)$ for $0 \leq x < \pi$.

(i) State the range of f . [1]

(ii) State the exact value of $f\left(\frac{2}{3}\pi\right)$. [1]

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

(iv) Obtain an expression, in terms of x , for $f^{-1}(x)$. [3]