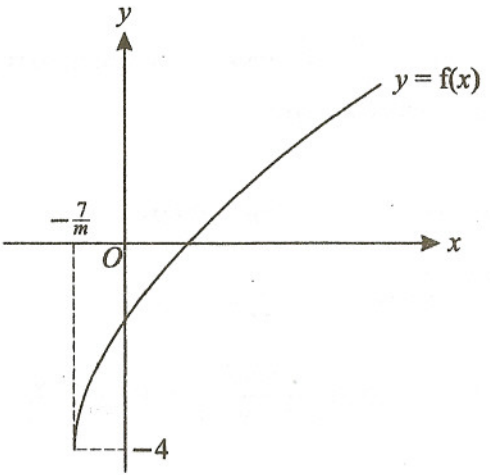

The function f is defined by $f(x) = \sqrt{(mx + 7)} - 4$, where $x \geqslant -\frac{7}{m}$ and m is a positive constant. The diagram shows the curve $y = f(x)$.

(i) A sequence of transformations maps the curve $y = \sqrt{x}$ to the curve $y = f(x)$. Give details of these transformations. [4]

(ii) Explain how you can tell that f is a one-one function and find an expression for $f^{-1}(x)$. [4]

(iii) It is given that the curves $y = f(x)$ and $y = f^{-1}(x)$ do not meet. Explain how it can be deduced that neither curve meets the line $y = x$, and hence determine the set of possible values of m. [5]