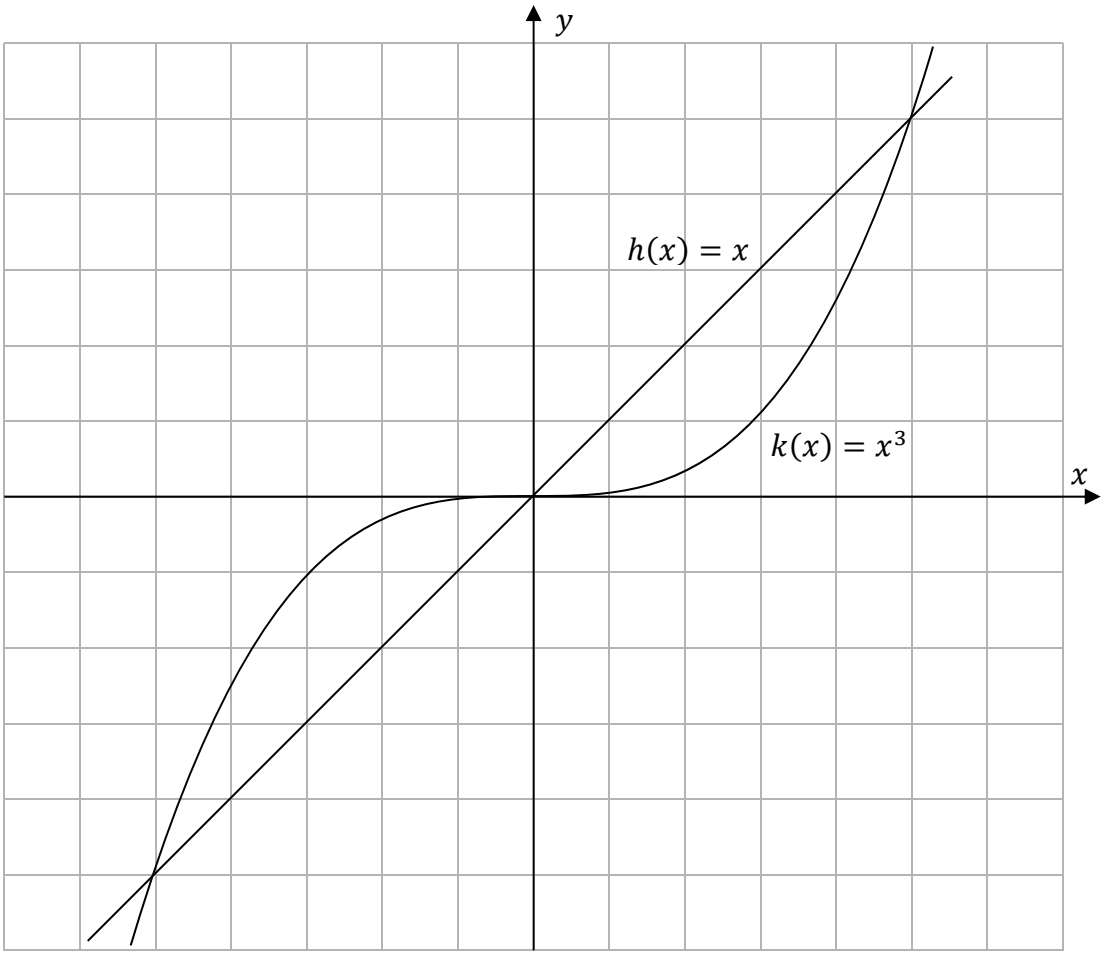
Question 6 **(25 marks)**

Parts of the graphs of the functions $h(x) = x$ and $k(x) = x^3,\ x \in \mathbb{R}$, are shown in the diagram below.



(a) Find the co-ordinates of the points of intersection of the graphs of the two functions.

(b) **(i)** Find the total area enclosed between the graphs of the two functions.

(ii) On the diagram on the previous page, using symmetry or otherwise, draw the graph of k^{-1}, the inverse function of k.