15 Functions $f(x)$ and $g(x)$ are defined as follows.

$f(x) = \sqrt{x}$ for $x > 0$ and $g(x) = x^3 - x - 6$ for $x > 2$.

The function $h(x)$ is defined as

$h(x) = fg(x)$.

(a) Find $h(x)$ in terms of x and state its domain. **[2]**

(b) Find $h(3)$. **[1]**

Fig. 15 shows $h(x)$ and $h^{-1}(x)$, together with the straight line $y = x$.

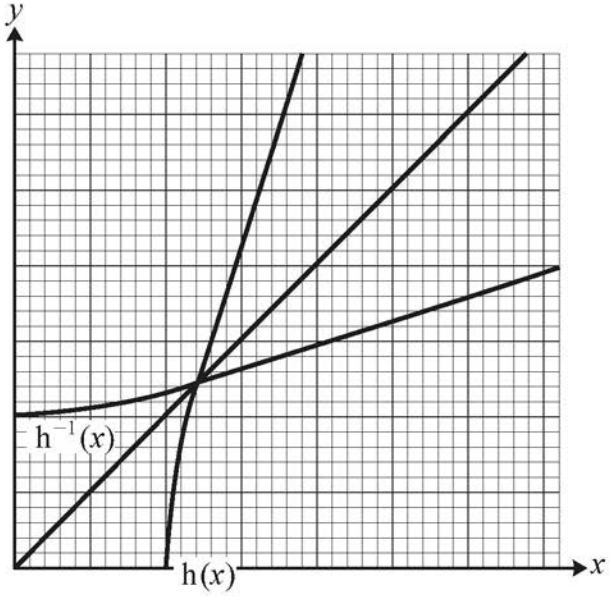

Fig. 15

(c) Determine the gradient of $y = h^{-1}(x)$ at the point where $y = 3$. **[4]**