

**7** The function  $f$  is defined by

$$f(x) = x^2 - 4x + 7 \text{ for } x > 2.$$

**(i)** Express  $f(x)$  in the form  $(x - a)^2 + b$  and hence state the range of  $f$ . [3]

**(ii)** Obtain an expression for  $f^{-1}(x)$  and state the domain of  $f^{-1}$ . [3]

The function  $g$  is defined by

$$g(x) = x - 2 \text{ for } x > 2.$$

The function  $h$  is such that  $f = hg$  and the domain of  $h$  is  $x > 0$ .

**(iii)** Obtain an expression for  $h(x)$ . [1]