

6. A function, $g(x)$, is defined as:

$$g(x) = \begin{cases} (x-3)^2 + 1 & x \leq 3, \\ 3x - 8 & x > 3 \end{cases}$$

(a) Find the value of $gg(0)$.

(2)

(b) Find all values of x for which $g(x) > 9$.

(4)

The function h is defined by $h(x) = (x-6)^2 + 6$, $x \leq 6$.

(c) Explain why h has an inverse but g does not.

(1)

(d) Solve the equation $h^{-1}(x) = -2$.

(3)

(Total for Question 6 is 10 marks)