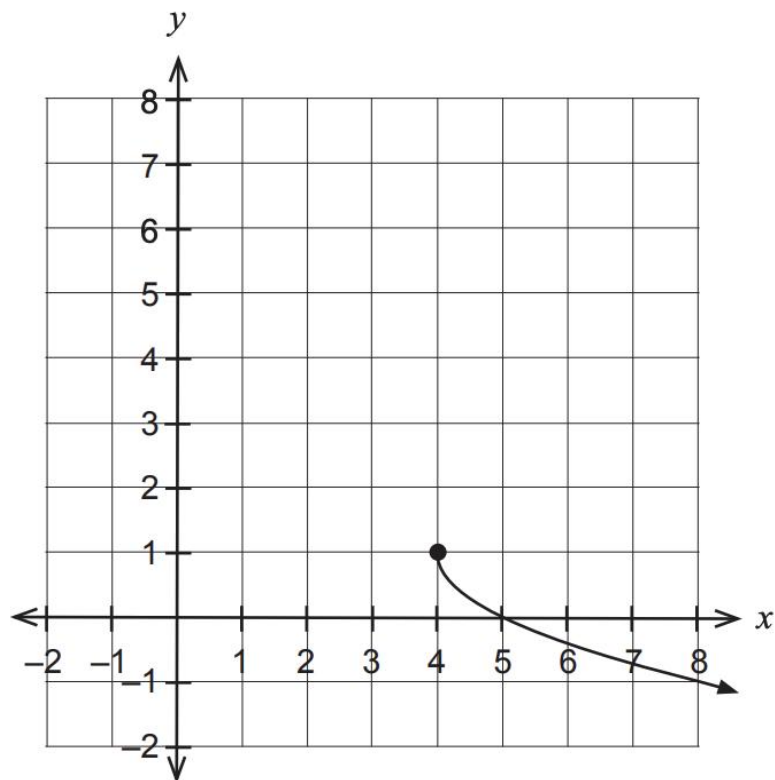


**Question 4****(9 marks)**

Function  $f$  is defined as  $f(x) = 1 - \sqrt{x - 4}$ . The graph of  $y = f(x)$  is shown below.



(a) Sketch the graph of  $y = f^{-1}(x)$  on the axes above. (2 marks)

(b) Determine the defining rule for  $y = f^{-1}(x)$  and state its domain. (3 marks)

Function  $g$  is defined as  $g(x) = \frac{1}{x^2}$ .

(c) Determine an expression for  $f \circ g(x)$ . (1 mark)

(d) For  $f \circ g(x)$ , determine the domain. (3 marks)

