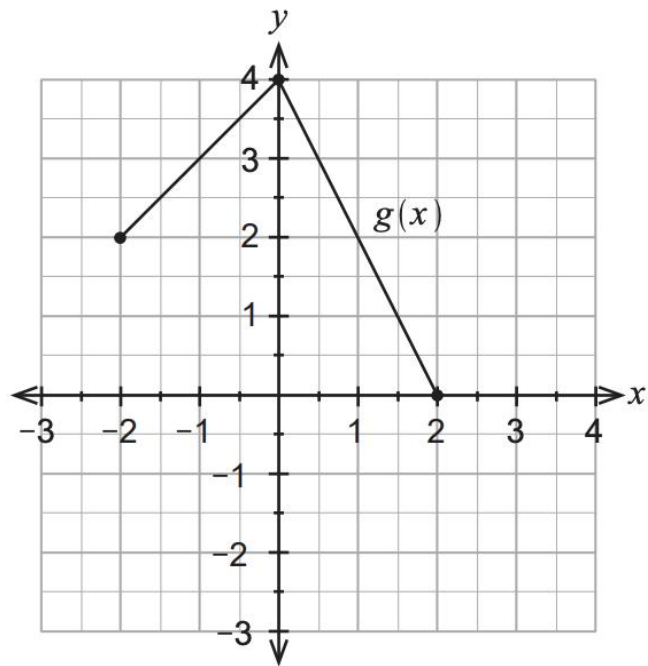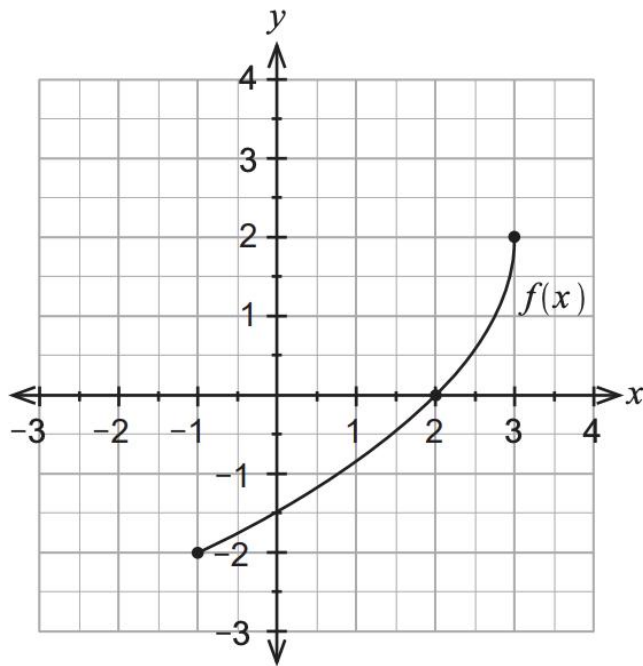**Question 2** (11 marks)

The graphs of functions f and g are shown below.

(a)   Sketch the graph of function f^{-1} on the same axes used for function f.   (2 marks)

(b)   Explain why the inverse of g is not a function.   (1 mark)

The defining rule for function f is $f(x) = 2 - 2\sqrt{3-x}$ where $-1 \leq x \leq 3$.

(c)   Determine the rule for $y = f^{-1}(x)$.   (3 marks)

(d)   Determine the exact value for $g\left(f\left(0\right)\right)$.   (2 marks)

(e)   Determine the domain for the function $y = f\left(g(x)\right)$. Justify your answer.   (3 marks)