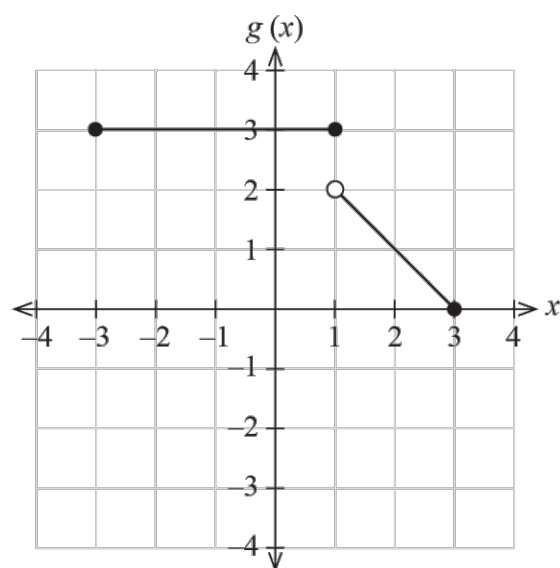
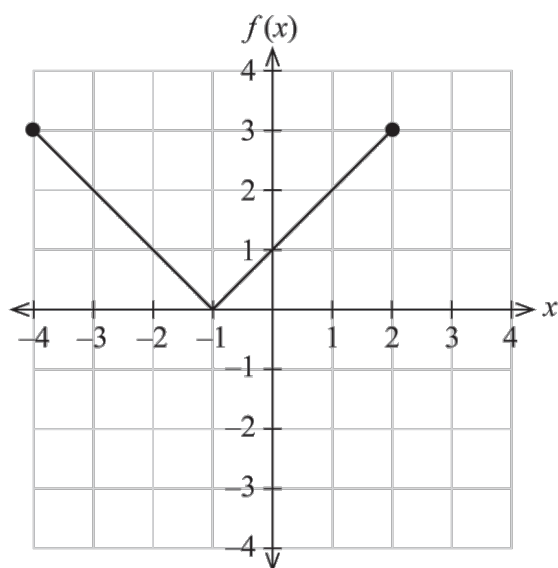


Question 4

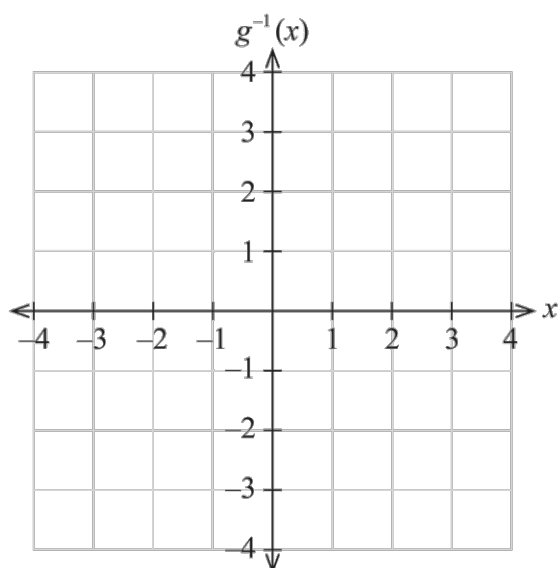
(11 marks)

The graphs of functions $f(x)$ and $g(x)$ are shown.



(a) Sketch the graph of $y = g^{-1}(x)$ on the axes below.

(2 marks)



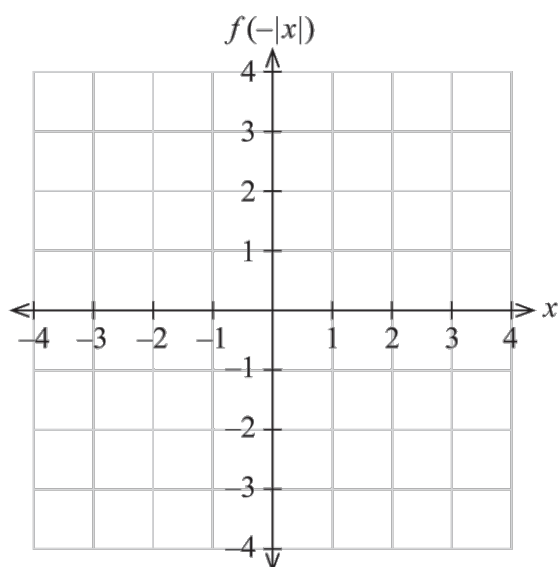
A spare grid is provided at the end of this Question/Answer booklet. If you need to use it, cross out this attempt and indicate that you have redrawn it on the spare grid.

(b) State the value for $g(f^{-1}(0))$.

(2 marks)

- (c) Determine the set of values of x such that $f(g(x))$ is defined. (2 marks)

- (d) Sketch the graph of $y = f(-|x|)$ on the axes below. (2 marks)



A spare grid is provided at the end of this Question/Answer booklet. If you need to use it, cross out this attempt and indicate that you have redrawn it on the spare grid.

- (e) The equation $|x + 1| = k - |x + a|$ has an infinite number of solutions, with the solution set being $-3 \leq x \leq -1$. Determine the values of the constants a and k . (3 marks)