1. [7 points] The entire graph of a function g(x) is shown below to the left. Also shown is a table of some values for a different function h(x). Assume that the function h(x) is invertible.



- **a**. [3 points] Find the domain of g(x) and range of g(x). Give your answers using interval notation or using inequalities. You do not need to explain or justify your answer.
 - Answer: g(x) has domain _____ and range _____
- **b**. [4 points] Find each of the following, or write N/A if a value does not exist or there is not enough information to find it. *You do not need to show work.*
 - i. $h^{-1}(-3)$
 - ii. g(h(0))
 - iii. all values of x so that g(h(x)) = 1

Answer: $h^{-1}(3) =$ _____

Answer: g(h(0)) = _____

Answer: x =_____

- 2. [5 points] On the axes below, sketch the graph of a single possible function y = f(x) satisfying all the listed properties.
 - f(0) = 1
 - the average rate of change of f(x) on [-4, 0] is 1
 - f(x) is concave up for -4 < x < 0
 - f(x) is invertible (that is, it has an inverse)
 - f(x) has a constant rate of change for 0 < x < 4

