

Graph of f

1. The figure shows the graph of the function f on its domain of $-3.5 \leq x \leq 3.5$. The points $(-3, 1)$, $(0, 1)$, and $(3, 1)$ are on the graph of f . The function g is given by $g(x) = 2.916 \cdot (0.7)^x$.
- (A) (i) The function h is defined by $h(x) = (g \circ f)(x) = g(f(x))$. Find the value of $h(3)$ as a decimal approximation, or indicate that it is not defined.
- (ii) Find all values of x for which $f(x) = 1$, or indicate that there are no such values.
- (B) (i) Find all values of x , as decimal approximations, for which $g(x) = 2$, or indicate that there are no such values.
- (ii) Determine the end behavior of g as x increases without bound. Express your answer using the mathematical notation of a limit.
- (C) (i) Determine if f has an inverse function.
- (ii) Give a reason for your answer based on the definition of a function and the graph of $y = f(x)$.

Write your responses to this question only on the designated pages in the separate Free Response booklet. Write your solution to each part in the space provided for that part.