Chapter 1.3: More with Inverse Functions
Calculus I
College of the Atlantic. September 22, 2022

1. Let $g(x) = x + 3$ and $h(x) = x^5$. And let $f(x) = h(g(x))$.

   (a) What is $f(1)$?

   (b) What is $f(x)$?

   (c) What is $f(2x)$?

   (d) What is $f(x + 2)$?

   (e) What is $g^{-1}(x)$?

   (f) What is $h^{-1}(x)$?

2. Let $f(x) = (x + 3)^5$

   (a) Write $f(x)$ as a compound function: $f(x) = g(h(x))$.

   (b) Determine $g^{-1}(x)$ and $h^{-1}(x)$ and use this information to find $f^{-1}(x)$.

3. Let $f(x) = 10^x$.

   (a) What is $f(2)$?

   (b) What is $f(3)$?

   (c) What is $f(4)$?

   (d) What is $f^{-1}(100)$?

   (e) What is $f^{-1}(1000)$?

   (f) What is $f^{-1}(10000)$?

   (g) Sketch $f(x)$.

   (h) Sketch $f^{-1}(x)$.

   (i) What is $f^{-1}(5000)$?