1.) Let \( C(x) = (1 + x^2)^3 \). Find functions \( f \) and \( g \) so that \( C(x) = (f \circ g) \) is true for all values of \( x \).

2.) Express the following function \( G(x) \) as a composition of two simpler functions

\[
G(x) = \frac{1}{(1 + x^4)},
\]

one of which is

\[
f(x) = \frac{1}{x}.
\]

3.) Suppose that in a certain biology lab experiment, the number of bacteria is related to the temperature \( T \) of the environment by the function

\[
N(T) = -2T^2 + 240T - 5400 \quad (40 \leq T \leq 90).
\]

Here, \( N(T) \) represents the number of bacteria present when the temperature is \( T \) degrees Fahrenheit. Also, suppose that \( t \) hours after the experiment begins the temperature is given by

\[
T(t) = 10t + 40 \quad (0 \leq t \leq 5)
\]

a.) Compute \( N(T(t)) \).

b.) How many bacteria are present when \( t = 0, t = 2, \) and \( t = 5 \) hours?