5. [7 points] Ross is playing “Dinomite 2” again. In round 2018 he is given that the population of the Gigantosaurus \( t \) years after 65 million years ago can be modeled by the following function:

\[
G(t) = 47 + 38 \cos(\pi(t - 3))
\]

Help Ross find all values of \( t \) on the interval \([3, 6.5]\) for which the population of the Gigantosaurus is equal to 77. You should show all your work for this problem and give your answer in exact form.

\[
t = \\
\]

6. [5 points] Joey is taking a road trip from New York to Los Angeles to continue his acting career. The computer in his car calculates that when the car’s speed is \( v \) miles per hour (mph), the car uses

\[
g = f(v) = \frac{1}{20} \log(27 \cdot 10^v)
\]
gallons of gas per hour. Assume the domain of \( f(v) \) is \((0, 150]\). Find a formula for \( f^{-1}(g) \).

\[
f^{-1}(g) = \\
\]