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.
$t=$ $\qquad$
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

$$
g=f(v)=\frac{1}{20} \log \left(27 \cdot 10^{v}\right)
$$

gallons of gas per hour. Assume the domain of $f(v)$ is $(0,150]$.
Find a formula for $f^{-1}(g)$.

$$
f^{-1}(g)=
$$

$\qquad$

