3. [9 points] Consider the following function:

$$F(x) = 2 + \int_{-1}^{\sin(x)} \frac{1+t^2}{1+t^4}\, dt.$$

a. [2 points] Find a value of a such that $F(a) = 2$.

Answer: $a =$ _____

b. [3 points] Calculate $F'(x)$.

Answer: $F'(x) =$ _____

c. [4 points] Find a function $f(t)$ and constants a and C so that we may rewrite $F(x)$ in the form $\int_a^x f(t)\, dt + C$. There may be more than one correct answer.

$f(t) =$ _____ $a =$ _____ $C =$ _____