NAME:

Show ALL your work CAREFULLY.

(a) Use the method of substitution to evaluate the following definite integral. Be sure to indicate the substitution you use.

\[ \int_{0}^{\frac{\pi}{2}} \frac{\cos x}{1 + \sin x} \, dx. \]

(b) The graph of the function \( f \) is given below. Consider the area function \( F(x) = \int_{0}^{x} f(t) \, dt \). For what values of \( x \) on the interval \([0, 2]\) is \( F \) concave down?

Date: January 12, 2007.