QUIZ 1
You have 25 minutes.
No notes, no books.
YOU MUST SHOW ALL WORK TO RECEIVE CREDIT
Good luck!

Name ________________________________

1. ___________ (/20 points)

2. ___________ (/20 points)

Total ___________ (/40 points)
1. a) Find a function \( g(t) \) so that one of its antiderivatives is

\[
f(t) = \frac{t}{2} \sqrt{4 - t^2} + 2 \sin^{-1} \frac{t}{2}
\]

b) Evaluate \( \int_0^2 g(t) dt \) using the Evaluation Theorem.
2. a) If \( f(x) = \int_x^{x^2} e^t \, dt \), find \( f'(x) \).

b) A large circular birthday cake of radius 2 feet is to be cut into two pieces by a single vertical cut of the knife. If you move the knife horizontally across the cake at 1 foot per second, how fast is the area of the prospective piece increasing when the knife is 1 foot in (a quarter of the way across)?