Problem 1 (5 points)
Express the following limit as a definite integral.

\[ \lim_{n \to \infty} \frac{2}{n} \sum_{i=1}^{n} \frac{2}{1 + \left(\frac{i}{n}\right)^2}. \]  
(B level)

Problem 2 (5 points)
Find the derivative of \( g(x) = \int_{1-2x}^{1+2x} t \sin(t) \, dt \).  
(C level)

Problem 3 (5 points)
Use substitution to evaluate the indefinite integral.

(a) \( \int u \sqrt{1-u^2} \, du \).  
(B level)

(b) \( \int \frac{\cos(x)}{\sin^2(x)} \, dx \).  
(A level)

\[ \text{The quiz lasts 30 minutes.} \]