KFUPM

MATH 102 QUIZ #1 Sec. 25

Name: ID:

Q1. Define the function f by

$$f(x) = \int_0^{\cos x} \sin^5 t dt.$$

Evaluate $f'(\frac{\pi}{6})$.

Q2. Evaluate the following limit, by writing it as the integral of a function defined on $[0, 1]$:

$$\lim_{n\to\infty} \frac{1}{n} \sum_{i=1}^{n} \cos \frac{\pi i}{n}$$

Q3. Evaluate the integral

$$\int_{-1}^{1} \left(\frac{1}{1+x^2} - \sqrt{1-x^2} \right) dx.$$