

Math 111.17 Fall 2002

Quiz #9

Name: _____

You have 50 minutes to complete this quiz which is worth 50 points. Calculators are permitted, but no other aids are allowed. Show all work neatly and in order, and clearly indicate your final answers. Answers must be justified whenever possible in order to earn full credit.

You may use any techniques from Chapter 5 Sections 1–5 to complete this quiz.

1. (10 points) (5.1) Compute the following limit: $\lim_{n \rightarrow \infty} \sum_{k=1}^n \frac{1}{n} \sqrt{1 + \frac{k}{n}}$.

2. (10 points) (5.2) Evaluate $3 \int_0^4 \cos^2 x \, dx + \int_0^2 3 \sin^2 x \, dx - \int_2^4 3 \cos^2 x \, dx$. (THINK!)

3. (10 points) (5.3) Compute $\int_8^9 2^x \, dx$.

4. (10 points) (5.4) Find $f'(x)$ if $f(x) = \int_{1.73\pi}^{\sqrt{x}} \frac{\cos t}{t} dt$.

5. (10 points) (5.5) Compute $\int \frac{1+x}{1+x^2} dx$.