

Math 165: Honors Calculus I
Quiz 4 *September 23, 1999*

Name: _____

1. Let f be a bounded function on $[a, b]$. Completely define the lower integral of f , $\underline{I}(f)$, and the upper integral of f $\bar{I}(f)$.

2. Let A be the open interval $(0, 1) = \{x \in R \mid 0 < x < 1\}$. Prove that $\sup A = 1$.

3. Show how to use integrals of step functions to find an approximation for

$$\int_0^1 \sqrt{x} dx$$

with an error less than ± 0.1 . (You do not need to carry out the arithmetic to get the final number, but you should include all other steps.)