King Fahd University of Petroleum & Minerals
Department of Mathematical Sciences
First First Semester (20041), 2004 – 2005
Math-102, Quiz-5

Section:
ID Number:
Name:

1. Show that, if f is continuous on the interval $[a, b]$, then the average value or mean value of f on $[a, b]$ is defined to be

$$f_{ave} = \frac{1}{b-a}\int_a^b f(x)dx$$

2. Prove that, if f is continuous on a closed interval $[a, b]$, then there is at least one number x^* in the interval $[a, b]$ such that

$$\int_a^b f(x)dx = f(x^*)(b-a)$$

3. Prove that, if f is continues on the interval $[a, b]$, and F is any antiderivative of f on $[a, b]$, then

$$\int_a^b f(x)dx = F(b) - F(a)$$