

King Fahd University of Petroleum & Minerals  
Department of Mathematical Sciences  
Second Semester (20042), 2004 – 2005  
Math-102, Quiz-2

**Section:**

**ID Number:**

**Name:**

1. Let  $x^*$  be a number in the interval  $[a, b]$ , using the Mean-Value Theorem for Integrals show that

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

2. Use the formula

$$A = \lim_{n \rightarrow +\infty} \sum_{k=1}^n f(x_k^*) \Delta x$$

where  $x^*$  as the left end point of each subinterval. Find the area under the parabola  $y = 9 - x^2$  over the interval  $[0, 3]$ .

3. Evaluate

$$\int x\sqrt{x-3} dx$$