King Fahd University of Petroleum and Minerals
Department of Mathematics and Statistics
Math 102 (181) Sec 02 - Quiz 1

Name: ID: Serial No.:

1. Using three approximating rectangles and midpoints, to approximate the area under
   the graph of $f(x) = 3x - x^2$ from $x = 0$ to $x = 3$

2. Using the definition of the definite integral, to find the value of the limit

$$\lim_{n \to \infty} \sum_{i=1}^{n} \frac{2}{n} \left[\frac{1 + \frac{2i}{n}}{(1 + \frac{2i}{n})^2 + 4} \right]$$

3. By interpreting it as an area, find the value of the integral

$$\int_0^1 (|x - 1| + 2\sqrt{1 - x^2})dx$$

4. Find the slope of the tangent line to the graph of the function $f(x) = \int_{\cos x}^{\sin(3x)(x)} \sqrt{t^2 + 3}dt$
at $x = 0$.

5. Find the value of the integral $\int 60x^7\sqrt{x^4+1}\,dx$

6. Suppose f is even integrable function, such that $\int_{-3}^{0} f(x)dx = 5$ and $\int_{3}^{10} f(x)dx =$

7. Find $\int_{-3}^{10} f(x)dx$