King Fahd University of Petroleum and Minerals
Department of Mathematics and Statistics
Math 102 (162) Sec 30 - Quiz 5

Name: ID: Serial No.:

1. Find the exact length of the curve.

$$y = \sqrt{x - x^2} + \sin^{-1}(\sqrt{x})$$

2. Find the area of the surface obtained by rotating $x = \frac{1}{3}(y^2 + 2)^{3/2}, \quad 1 \leq y \leq 2$ about the $x$-axis.

3. Determine whether the sequence $a_n = n - \sqrt{n+1}\sqrt{n+3}$ converges or diverges. If it converges, find the limit

4. Determine whether the series $\sum_{n=1}^{\infty} \left(e^{1/n} - e^{1/(n+1)}\right)$ is convergent or divergent. If it is convergent, find its sum.

5. Express the number $10.1\overline{35}$ as a ratio of integers