King Fahd University of Petroleum and Minerals
Department of Mathematics & Statistics
Math102.27 Spring 2012 (112) Quiz (5)

Name: _____

ID #: _____ **Serial#:** _____

---

1. Find the radius of convergence and interval of convergence of the series

$$\sum_{n=2}^{\infty}(-1)^n \frac{x^n}{4^n \ln n}$$

2. Find the coefficient of $\boldsymbol{x^5}$ if we evaluate the following integral as an infinite series.

$$\int \frac{sinx - x}{x} dx$$

3. Find the exact sum of the series (**Hint:** Use the power series expansion of $f(x) = \frac{1}{(1-x)^2}$)

$$\sum_{n=1}^{\infty} \frac{n}{5^n}$$

4. Find the first five terms of the Taylor series of $f(x) = \ln x$ at $a = 2$

Good luck
Khaled Al-Anezy