

Math 102 (Semester 132)  
**Quiz Three**

Name: \_\_\_\_\_  
ID Num: \_\_\_\_\_  
Section: \_\_\_\_\_ Serial Number: \_\_\_\_\_

1. Calculate the radius and interval of convergence for the series

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

2. Use the Taylor series formula to find the Taylor series of  $\ln(x)$  about the center  $x = e$ . Write your answer in Sigma notation. Set  $x = 2e$  to find the sum of the alternating harmonic series.

3. Find  $\int_0^1 e^{x^2} dx$ . Write the answer as an infinite series.

4. What is the coefficient of  $x^6$  in the power series expansion of  $e^{x^2} \cos(2x)$ ?