Name: _____ Quiz 10

Math F252X-901, Calculus II Fall 2024

Thirty minutes maximum. No aids (book, notes, calculator, phone, etc.) are permitted. Show all work and use proper notation for full credit. Answers should be in reasonably simplified form.

1. Determine whether the following series converge or diverge. Justify your answers.

   (a) (8 points.) $\displaystyle\sum_{n=1}^{\infty} \left(\frac{1}{\pi} + \frac{1}{n}\right)^n$

   (b) (8 points.) $\displaystyle\sum_{n=1}^{\infty} \frac{10^n}{n!}$

(c) (8 points.) $\sum_{k=1}^{\infty} \frac{(2k)!}{k^{2k}}$ hint: be VERY careful with grouping symbols!

(d) (8 points.) $\sum_{n=0}^{\infty} \frac{n^e}{e^n}$

2. Consider the power series $\sum_{k=0}^{\infty} \frac{3k+1}{k!}(x+4)^k$.

(a) (4 points.) State the center of the power series: _____

(b) (4 points.) State one value of x for which the power series converges: $x =$_____