1/22/2001 MA401 Complex Analysis Name:_____
Dr. Lunsford Quiz 6 (20 Points Total)

For each of the following complex series (i.e. $z \in \mathbb{C}$)

(a) Determine the radius of convergence of the series,

(b) Describe the open disk of convergence (i.e. the set of all $z \in \mathbb{C}$ such that the series converges),

(c) If the radius of convergence is finite, then graph the open disk of convergence in the complex plane.

Neatly show ALL of your work and CLEARLY indicate your answers. (The first two problems count 7 points and the last problem counts 6 points).

I. $\sum_{n=1}^{\infty} \frac{n+1}{2^n}(z+2i)^n$

II. $\sum_{n=0}^{\infty} \frac{(1-i)^{n+1}}{n+2}(z-3+i)^n$

III. $\sum_{n=0}^{\infty} \frac{(-1)^n z^{2n}}{(2n)!}$