

Math 114
Spring 2009
Professor Readdy

One more Exam III review question...

11. Find the interval of convergence and radius of convergence for the power series

(a) $\sum_{n \geq 0} \frac{(x+1)^n}{5^n}$

(b) $\sum_{n \geq 0} \frac{(-1)^n n (x+3)^n}{4^n}$

(c) $\sum_{n \geq 1} \frac{(2)^n (4x-8)^n}{n}$

(d) $\sum_{n \geq 0} n! (2x+1)^n$

You are only allowed to read this if you are standing on your head and you have tried all four parts!
11a. $[-6, 4]$ and $R = 5$.
11b. $(-7, 1)$ and $R = 4$.
11c. $[2 - 1/8, 2 + 1/8)$ and $R = 1/8$.
11d. The series only converges when $x = -1/2$, so $R = 0$.