

MATHEMATICS 101 Section 211

Quiz #9, April 2, 2012

Show all your work. Use back of page if necessary. Calculators are not allowed.

Last Name:

First Name:

UBC Stud. No.:

- 1) For each of the following power series, determine the radius of convergence and the interval of convergence. (4 points each)

(i) 
$$\sum_{n=0}^{\infty} (-1)^n \frac{x^n 3^n}{n^3 + 5}$$

(ii) 
$$\sum_{n=0}^{\infty} (-1)^n \frac{(2x + 3)^n}{\sqrt{n} + 2}$$

- 2) Suppose we know that the power series  $\sum_{n=0}^{\infty} c_n x^n$  converges at the point  $x = -6$ . What can we say (if anything) about the convergence of the series below? Explain. (1 mark each)

(i) 
$$\sum_{n=0}^{\infty} c_n 3^n$$

(ii) 
$$\sum_{n=0}^{\infty} c_n 6^n$$