

Math 181
Spring 2010

Name _____

Homework # 15
Due Thursday, May 19
No late papers accepted! No excuses!

1. a) Find the series' radius and interval of convergence. For what values of x does the series converge (b) absolutely and (c) conditionally?

i)
$$\sum_{n=0}^{\infty} \frac{x^{2n+1}}{n!}$$

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

iii)
$$\sum_{n=1}^{\infty} \frac{(3x-2)^n}{n}$$

2. Find a power series representation for $f(x) = \frac{x}{4x+1}$.

3. Use differentiation to find a power series for $f(x) = \frac{1}{(1+x)^2}$. What is the radius of convergence?

4. Find the Maclaurin polynomial of degree n for the function: $f(x) = \frac{1}{x+1}$