Topics for Calculus BC Test 1 Chapter 9

1) Testing Series

   a) Both comparison tests

   b) The integral test

   c) Ratio and Root tests

   a) Alternating Series test

   b) Testing for Absolute or Conditional Convergence

2) Finding the sums of certain series

   a) Geometric Series

   b) Series with Partial Fraction terms

For the last time in this class, a cheat sheet is allowed for a chapter test. You may use your Testing Series sheets only for this test. You can add notations to it but no example problems are to be done on the sheet. Calculators are not allowed.

Review for Chapter 9 Test 1 Name_____

You may do your work on a separate sheet of paper

Test the series for absolute convergence, conditional convergence, or divergence.

1) $\sum_{n=1}^{\infty}(-1)^n \frac{n^2-1}{n^2+n}$

2) $\sum_{n=1}^{\infty}(-1)^n \frac{n^4-1}{n^5+n}$

3) $\sum_{n=1}^{\infty}\left(\frac{3n}{1-8n}\right)^n$

4) $\sum_{k=1}^{\infty}\frac{2^k k!}{(k+2)!}$

5) $\sum_{n=1}^{\infty}\frac{3^n n^2}{n!}$

6) $\sum_{n=1}^{\infty}(-1)^n 2^{1/n}$

7) $\sum_{n=1}^{\infty}(-1)^n \frac{\ln n}{\sqrt{n}}$

8) $\sum_{k=1}^{\infty}\frac{k+5}{5^k}$

9) $\sum_{k=1}^{\infty} \frac{(-2)^{2k}}{k^k}$

10) $\sum_{n=1}^{\infty} \frac{\sqrt{n^2-1}}{n^3+2n^2+5}$

11) $\sum_{n=1}^{\infty} \frac{n!}{e^{n^2}}$

12) $\sum_{n=1}^{\infty} \frac{e^{1/n}}{n^2}$

13) $\sum_{n=1}^{\infty} \frac{\tan^{-1} n}{n\sqrt{n}}$

14) $\sum_{n=1}^{\infty} \frac{(2n)^n}{n^{2n}}$

15) $\sum_{n=1}^{\infty} \left(\frac{n}{n+1}\right)^{n^2}$

Find the sum of the given series.

16) $\sum_{n=1}^{\infty} \frac{3}{2^n}$

17) $\sum_{k=0}^{\infty} \frac{1}{k^2+5k+6}$