

In class assignment 6- Series and Convergence Testing

Name: _____

November 3, 2014

Directions: Work in groups to complete the following problems.

1. Do the following series converge or diverge?

(a) $\sum_{n=1}^{\infty} \frac{n + 2^n}{n2^n}$

(f) $\sum_{n=0}^{\infty} e^{-n}$

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

(g) $\sum_{n=1}^{\infty} e^n$

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

(h) $\sum_{n=1}^{\infty} \frac{0.1^n}{n!}$

(d) $\sum_{n=1}^{\infty} \frac{1}{n^4 + e^n}$

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

(e) $\sum_{n=1}^{\infty} \frac{n \sin^2(n)}{n^3 + 1}$

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

2. Explain why the indicated test cannot be used to tell whether the series converges

(a) $\sum_{n=1}^{\infty} n^2$; integral test

(d) $\sum_{n=1}^{\infty} \sin(n)$; comparison test

(b) $\sum_{n=1}^{\infty} e^{-n} \sin(n)$; integral test

(e) $\sum_{n=1}^{\infty} (-1)^n$; ratio test

(c) $\sum_{n=1}^{\infty} \frac{(-2)^n}{n^2}$; comparison test

3. Find the sum of the following series.

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

(b) $\sum_{n=0}^{\infty} \frac{3^{n+2}}{11^n}$