

Exam 3
No Work-No Credit

Math 142

Spring 03

Name
SS#

- 1) Determine if the sequence converges or diverges. If it converges, find the limit.

$$\left\{ \frac{n^2}{\ln(n+1)} \right\}$$

- 2) Use the Integral test to determine if the series converges or diverges.

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

3) Determine if the series are convergent, or divergent.
(Must show work for any credit.)

a)
$$\sum_{n=1}^{\infty} \left(\frac{-3}{2}\right)^n$$

b)
$$\sum_{n=1}^{\infty} \frac{1 - \cos n}{n^2}$$

c)
$$\sum_{n=2}^{\infty} (-1)^n \frac{\sqrt{\ln n}}{n}$$

4) Determine the interval of convergence of $\sum_{n=0}^{\infty} \frac{3^{2n}}{n+1} (x-2)^n$.

6) Let $f(x) = 10^x$. Find $T_4(x) = \sum_{n=0}^4 \frac{f^n(0)}{n!} x^n$ (here $a = 0$).

(Simplify, round each coefficient to two decimal places).