

FERPA RELEASE: Because of privacy concerns, we are not allowed to return your graded homework in lecture without your permission. If you wish us to return your homework in lecture, please sign on the line indicated below. Otherwise, you will have to pick your homework up in your instructor's office.

SIGN HERE: _____.

Problem	Points	Score
1	4	
2	4	
3	4	
Total	12	

1. (4) Does the series $\sum_{n=1}^{\infty} \frac{n \ln n}{\sqrt{n^4 + 7}}$ converge or diverge? Justify your answer.

2. (4) What can you conclude about the series $\sum_{n=1}^{\infty} a_n$ if $\lim_{n \rightarrow \infty} \left| \frac{a_{n+1}}{a_n} \right| = \frac{1}{2}$? *Note:* Correct answers will use facts from both Lecture 8 and Lecture 9.

3. (4) Determine which of the series below satisfy the conditions of the Alternating Series Test. For those series that do satisfy these conditions, decide how many terms need to be added in order to approximate the sum to within $1/10000$.

(a)
$$\sum_{n=1}^{\infty} \frac{(-1)^n \sin n}{n^6 + 1}$$

(b)
$$\sum_{n=1}^{\infty} \frac{(-1)^n}{n!}$$