

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) In the following problems, s_n denotes the n th partial sum of the series $\sum_{n=1}^{\infty} a_n$.

(a) Compute the 4th partial sum of $\sum_{n=1}^{\infty} \frac{2}{n+2}$.

(b) If $\sum_{n=1}^{\infty} a_n = 3$ then what are $\lim_{n \rightarrow \infty} a_n$ and $\lim_{n \rightarrow \infty} s_n$?

(c) If $\lim_{n \rightarrow \infty} s_n = 4$ then what are $\lim_{n \rightarrow \infty} a_n$ and $\sum_{n=1}^{\infty} a_n$?

2. (4) This two-part question concerns the series $\sum_{n=1}^{\infty} \frac{(2x+1)^n}{3^n}$.

(a) For what values of x does this series converge?

(b) When this series converges, it defines a function of x . What is this function?

3. (4) Arrange the following quantities in order from least to greatest, and explain your reasoning.

$$\sum_{n=9}^{\infty} \frac{1}{n^2 + 1} \quad \int_{10}^{\infty} \frac{dx}{x^2 + 1} \quad \int_9^{\infty} \frac{dx}{x^2 + 1}$$