

Name: SOLUTIONS

Quiz #11 - April 6, 2007

1. Complete the following definition:

The series $\sum_{n=1}^{\infty} a_n$ is called *convergent*, and we write $\sum_{n=1}^{\infty} a_n = s$, if...

$$\text{Let } S_n = a_1 + a_2 + \dots + a_n$$

$$\text{Then } \sum_{n=1}^{\infty} a_n = s \text{ if } \lim_{n \rightarrow \infty} S_n = s$$

2. For each series, determine if it is convergent. If it is, find its sum.

a. $\sum_{n=1}^{\infty} (-1)^n \frac{5}{3^{n+1}}$

converges, $r = 1/3$ $a = -5/9$

$$\frac{-5/9}{1 - 1/3} = \frac{-5/9}{2/3} = \left(\frac{-5}{12} \right)$$

b. $\sum_{n=1}^{\infty} \frac{3+n}{5+2n}$

Diverges, a_n 's not $\rightarrow 0$.

3. Decide whether the following series converges or not, and explain your answer:

$$2 - 2/3 + 2/5 - 2/7 + 2/9 - 2/11 + 2/13 \dots$$

yes, by A.S.T.