

Your name: _____

Quiz no. 5-Remake (1220-5 Calculus II,
Fall 2006)
November 13, 2006

25 min. No symbolic calculators allowed (TI-89 and similar)!
(TI-86 or lower are allowed.)

1. (4 points) Determine the value of the following series:

$$5 + 2 + \frac{4}{5} + \frac{8}{25} + \frac{16}{125} + \cdots =$$

2. (12 points) Find out which of the following series converges. Indicate which test you use.

(a)

$$\sum_{k=2}^{\infty} \frac{1}{k \cdot (\ln k)^3}$$

(b)

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

(c)

$$\sum_{k=1}^{\infty} \frac{k^2 2^k}{3^k}$$

3. (5 points)

$$\sum_{k=1}^{\infty} \frac{1}{(k+1)(k+2)} =$$

4. (4 points) Assume you know that the sequence given by

$$a_1 = 1, \quad a_{n+1} = \frac{1}{2} \left(a_n + \frac{2}{a_n} \right)$$

has a limit $L = \lim_{n \rightarrow \infty} a_n$. Determine the limit by finding an equation for L .