Mini-exam 4 (10 POINTS TOTAL) MATH 141, SUMMER 2015

NAME:

Problem 1 What is the minimum number of terms of the series $\sum_{n=1}^{\infty} \frac{(-1)^{n+1}}{n^3}$ we need to add to find the sum with $|error| \leq 0.001$?

(a) 3

(b) 5

(c) 9

(d) 11

(e) 13

Problem 2 If the series $\sum_{n=1}^{\infty} a_n = 10$, then find $\lim_{n\to\infty} \frac{a_n+3}{2}$.

(a) 0

(b) $\frac{3}{2}$

(c) $\frac{13}{2}$

(d) 2

(e) Diverges to ∞

Problem 3 For each of the series (I) and (II) given below choose the right answer.

$$(I) \quad \sum_{n=1}^{\infty} \frac{n^2-1}{5n^4+1}, \qquad (II) \quad \sum_{n=1}^{\infty} \frac{1+\sin n}{6^n}.$$

1. Only (I) converges.

2. Only (II) converges.

3. Both diverge.

4. Both converge.

5. None of the above.

Problem 4 Determine whether $\sum_{n=1}^{\infty} \frac{(-1)^n}{\sqrt[3]{n}}$ is absolutely convergent, conditionally convergent, or divergent. Show your work.

Problem 5 Determine whether $\sum_{n=1}^{\infty} (-1)^n \left(\frac{n}{2n+1}\right)^n$ is absolutely convergent, conditionally convergent, or divergent. Show your work.

Feedback:

1. Any comments?