Friday, March 18

Announcements

WeBWorK #10 is due Wednesday, March 23 at 9pm

- Covers material from “Week 10”—see syllabus on course web page

Pick up your quiz papers in the Math Learning Centre

Quiz #5 will take place today, starting halfway through class

- You must have your student ID
- You must take the quiz in the section you’re registered in
- Completely closed book, no phones or calculators, etc.

Thank you for your cooperation with the exam-conditions procedures (especially staying in your seats, and not talking, until all quiz papers have been collected). It helps us a lot! and keeps the quizzes efficient.

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Clicker Questions

Clicker Question 1

A limit of a ratio

Suppose we have the series

$$\sum_{n=3}^{\infty} a_n\,, \quad \text{where} \quad a_n = \frac{(n-1)!}{2^{n(n-1)}}\,.$$

What is $\lim_{n\to\infty} \left| \frac{a_{n+1}}{a_n} \right|$?

A. ∞

B. 1

C. 0

D. $1/2$

E. none of the above

The calculation

$$\begin{aligned}
\lim_{n\to\infty} \left| \frac{a_{n+1}}{a_n} \right| &= \lim_{n\to\infty} \frac{n!/2^{(n+1)n}}{(n-1)!/2^{n(n-1)}} \\
&= \lim_{n\to\infty} \frac{n!}{(n-1)!} \frac{2^{n^2-n}}{2^{n^2+n}} \\
&= \lim_{n\to\infty} n \cdot \frac{1}{2^{(n^2+n)-(n^2-n)}} \\
&= \lim_{n\to\infty} n \cdot \frac{1}{2^{2n}} = \lim_{n\to\infty} \frac{n}{4^n} = 0.
\end{aligned}$$

Quiz #5: Friday, March 18

You are in Section 211.

Exam conditions

- Put away all books, notes, calculators, scratch paper
- Turn off your phones and keep them out of sight
- Pass us your student ID (UBCcard) if asked
- Take the top quiz in the stack passed to you
- Do not start writing (besides name/ID#) until told to do so
- Even if you finish the quiz early, stay in your seat
- When the quiz ends, do not start talking until all quiz papers have been collected
- When the quiz ends, stop writing, or you will receive a 0 for the quiz
- Collect your ID from the instructor if necessary
  - Say last name with its 1st letter—example: “M is for Martin”