MATH 1B WEEK 6, THURSDAY

Exercise 1. Does the sequence defined by $a_n = 3^n 7^{-n}$ converge? If it does, find the limit.

Exercise 2. Does the sequence defined by $a_n = \cos\left(\frac{n\pi}{n+1}\right)$ converge? If it does, find the limit.

Exercise 3. Find the limit of the sequence $\sqrt{2}, \sqrt{2\sqrt{2}}, \sqrt{2\sqrt{2\sqrt{2}}}, \ldots$.

Exercise 4. Write the following sequences as a telescoping sum. Check convergence and find the limit, if it exists.

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

Exercise 5. Use the integral test to check if $\sum_{n=1}^{\infty} n^2 e^{-n^3}$ converges.

Exercise 6. Compute the area of a Koch snowflake. (I will draw this on the board. If you weren't in section, google image search to see what this is.)

Exercise 7. Express the perimeter of a Koch snowflake as the limit of a sequence or series. Can you compute it?