

Dror Bar-Natan: Classes: 2002-03: Math 157 - Analysis I:

Homework Assignment 17

Assigned Tuesday January 28; due Friday February 7, 2PM at SS 1071

web version: <http://www.math.toronto.edu/~drorbn/classes/0203/157AnalysisI/HW17/HW17.html>

Required reading

All of Spivak Chapter 19.

To be handed in

From Spivak Chapter 19: Part (v) of each of problems 1, 2, 3, 5, 7, 9.

Recommended for extra practice

Spend 20 minutes a day over the next 7 days doing extra parts of problems 1–9 of Chapter 19. Never finish your work!!! Just get to the point where you are convinced that you know how to continue. In particular, avoid writing what you can do in your head and don't bother to simplify your results.

Just for fun

- Is there an operation \star (star) that relates to \times (times) like \times relates to $+$ (plus)? I.e., we hope that \star and \times will satisfy P1–P13, or at least P1–P9, with \star replacing \times and with \times replacing $+$ (possibly with some replacement for the values of 0 and 1). Hint: $a \star b = a^b$ won't work, if only for $a^b \neq b^a$ and thus P8 would fail.
- Is there an operation \bullet that relates to \star like \star relates to \times ?
- Write the obvious third, fourth and fifth parts of this question and solve them (you may wish to use the symbols \otimes , \circledast and $\#$).

Unpaid Advertisement

Challenging math problems sessions, meant to expose students to the beauty of such problems and to help them succeed in the likes of the Putnam Mathematics Competition, are held on Wednesdays at 4-6PM at UC376, as of last week. Enjoy!