

Dror Bar-Natan: Classes: 2004-05: Math 157 - Analysis I:

Homework Assignment 18

Assigned Tuesday February 22; due Friday March 4, 2PM, at SS 1071

Required reading. All of Spivak's chapter 19, including the appendix.

To be handed in. From Spivak Chapter 19: problems 7(vi), 9(vi), 21a and 39. From the appendix to that chapter: problems 11 and 13.

In class review problem(s) (the problem from HW17 postponed to Thursday February 24). Chapter 19 problem 6i: Find

$$\int \frac{2x^2 + 7x - 1}{x^3 + x^2 - x - 1} dx.$$

Recommended for extra practice. All else in problems 7 and 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. Also, problems 17, 21b, 24, 33, and from the appendix, problem 2.

Just for fun. We all know that $3\frac{1}{7}$ is a very good approximation to π ; in fact, it is not difficult to find people who think that π is $3\frac{1}{7}$. Prove them wrong, and also decide which one is bigger (π or $3\frac{1}{7}$) by computing the integral

$$\int_0^1 \frac{x^4(1-x)^4}{1+x^2} dx.$$