

Dror Bar-Natan: Classes: 2003-04: Math 157 - Analysis I:

## Homework Assignment 17

Assigned Tuesday January 27; due Friday February 6, 2PM, at SS 1071

**Required reading.** All of Spivak Chapter 18.

**To be handed in.** From Spivak Chapter 18: 1 (ii, v, ix), 4 (odd parts), 7 (odd parts), 8 (odd parts), 21, 47 (e).

**Recommended for extra practice.** From Spivak Chapter 18: 1 (the rest), 4 (even parts), 6, 7 (even parts), 8 (even parts), 18, 34, 47 (a-d), 49.

**Aside.** Here's a short Mathematica session that computes an approximation of the number  $e$  for which  $\int_1^e \frac{dt}{t}$ :

```
drorbn@coxeter:~/classes/157AnalysisI:1 math
Mathematica 4.1 for IBM AIX
Copyright 1988-2000 Wolfram Research, Inc.
```

```
In[1]:= s = 0; t = 1; dt = 0.000001;
```

```
In[2]:= While[(s += dt/t) < 1, t += dt]; t
```

```
Out[2]= 2.71828
```

**Just for fun.** How far can you reach by stacking up  $n$  identical domino pieces, before your tower will lean over and fall?

