Math 145B
Spring 2017

UPDATED GENERAL INFORMATION — APRIL 7, 2017

Office hours

These will be Mondays from 2:30 to 3:30 and by appointment when necessary; it is probably best to contact me by electronic mail or in person before or after class to set up other times.

Intersections of nested intervals

Here is a more precise statement of the result mentioned in the lectures:

THEOREM. *Suppose that we are given a sequence of closed intervals* $\{J_k = [a_k, b_k]\}$ *such that for each* k *we have* $J_{k+1} \subset J_k$*, so that*

$$a_k \;\leq\; a_{k+1} \;\leq\; b_{k+1} \;\leq\; b_k$$

for all k*. Then the intersection* $\cap_k J_k$ *is equal to the interval* $[a^*, b^*]$*, where* $a^* = \text{L.U.B.}\{a_k\} = \lim_{k\to\infty} a_k$ *and* $b^* = \text{G.L.B.}\{b_k\} = \lim_{k\to\infty} b_k$*.*

The hypotheses ensure that $a^* \leq b^*$. If equality holds, then $[a^*, b^*]$ is meant to denote the one point set whose only member is $a^* = b^*$.