Math 152 Sections 15-17

Workshop and homework, October 6, 2004

Opportunities for reviewing next week with me:

- Extra review session: Monday October 11, 4:30-5:30. The location will be posted at

  `http://math.rutgers.edu/~vatter/`

  as soon as I have it (certainly before Saturday).
- Regular office hours: Monday October 11, 6-7, Hardenbergh Hall B7
- Regularly section 15: Wednesday October 13, 4:30-5:50, Scott Hall 215
- Regularly section 16: Wednesday October 13, 6:10-7:30, Scott Hall 106

Please attend as many of these as you like. Note that there will **not** be a section 17 meeting next week.

Due dates for the following assignments: You may turn the homework and workshop in at any of the four times listed above. Please indicate clearly which section you usually attend (which may or may not be the section you are actually registered for).

Homework:

6.3	39
7.5	57
8.2	6,14
9.1	3,9,10
9.2	5,9

Workshop problem: Consider the following integrals.

(1) $\int_0^\infty \frac{\ln x}{x}\,dx$

(2) $\int_0^\infty \frac{\ln x}{\sqrt{x}}\,dx$

(3) $\int_0^\infty \frac{\ln x}{x^3}\,dx$

Now:

(a) Graph the integrands and determine which integrands are larger than the others, for large x.

(b) Do integrals (1) and (2) converge or diverge? (Try substitution to evaluate one of the integrals, and use your answer to part (a) above.)

(c) Explain why $\frac{\ln x}{x^3} < \frac{1}{x^2}$ for all $x > 1$ and use this fact to decide whether integral (3) converges or diverges.