Math 141 Homework #14
Due Tuesday 12/4/07 Bonus Problems

Bonus Problem #1 Suppose that you are given two polynomials $f(x), g(x)$ such that $g(x)$ has no non-negative roots. How can you tell whether

$$\int_0^\infty \frac{f(x)}{g(x)}\, dx$$

converges or diverges? (Hint: Make an educated guess, then prove it using the Comparison Theorem on p. 429.)

Bonus Problem #2 Generalize the result of the first problem to include functions that are algebraic but not rational (i.e., involve roots as well as polynomials; see p. 33).