Mathematics 116 Print Name: _____
Take-Home Quiz
Due Wednesday, April 23, 2008 Signature: _____

Your signature is your pledge that you have adhered to the same guidelines used for problem sets.

1. Use Simpson's Rule with $n = 100$ to estimate $\int_0^1 \frac{2t}{t^2+1}\,dt$. *You may use a spreadsheet or a procedural computer language (generally, a language whose name doesn't include the word visual) to do the calculations. The spreadsheet or source for the program should be annotated enough so that the calculations are clear.*

2. Use the formula given in class for the maximum error using Simpson's Rule to obtain a bound on the error in your calculations.

3. Evaluate $\int_0^1 \frac{2t}{t^2+1}\,dt$ exactly.

4. Use a calculator to get a decimal approximation for the difference between the approximation you obtained using Simpson's Rule and the exact value you obtained.

5. Compare that difference, effectively your error using Simpson's Rule, to the theoretical maximum error you determined.