Math 181 Name _____
Fall 2009

Homework #9
Due Wednesday September 30
No late papers accepted! No excuses!

1. Use the Trapezoidal Rule and Simpson's Rule to estimate the definite integral. Use n = 4.

$$\int_0^1 \sin x^2 \, dx$$

2. Estimate the minimum number of subintervals needed to approximate the integral with an error of magnitude less than 0.0001 by a) the trapezoidal rule and (b) Simpson's Rule.

$$\int_{-1}^{1} \left(x^2 + 1\right) dx$$

3. Evaluate each integral.

   a) $\int \frac{dy}{y^2 - 2y + 2}$

b) $\int \frac{2}{\sqrt{1-4x^2}}\,dx$

4. Find the area of the surface generated by revolving about the x-axis the region in the first quadrant enclosed by the coordinate axes, the curve $y = \frac{2}{1+x^2}$, and the line x = 1.

5. Use the Table of Integrals at the back of the book to evaluate the integrals. State which formula used.

a) $\int \frac{\arctan x}{x^2}\,dx$

b) $\int \frac{\sqrt{3x+9}}{x}\,dx$