Math 472: Assignment 4 — due Monday, Oct. 17, 2005

1. Do Exercise 2.6 in the textbook.

2. Do Exercise 3.4 in the textbook.

3. By considering the scalar equation $y'(t) = f(t)$, i.e., f is independent of y, show that in this case the classical fourth-order Runge-Kutta method is equivalent to *Simpson's rule*

$$\int_a^b f(x)dx \approx \frac{b-a}{6}\left[f(a) + 4f(\frac{a+b}{2}) + f(b)\right].$$

4. Do Exercise 3.7 in the textbook.