

MATH 413
Fall 2007
Lab9

Exercise Set 4.3

Exercise 1

(3 pt)

Use the Composite Simpson's rule with the indicated values of n to approximate the following integrals:

- $\int_0^1 \sqrt{x} dx, n = 8$
- $\int_1^2 x \ln x dx, n = 8$
- $\int_0^2 \frac{2}{x^2+4} dx, n = 8$

Use the file **CSIMPR41.mws** from your CD.

Exercise 2

(3 pt)

Modify the given code, so that you get the Composite Trapezoidal rule and approximate the same integrals as in Exercise 1.

Exercise 3

(4 pt)

Modify the given code, so that the program calculates the ratio $\frac{\text{error}_h}{\text{error}_{\frac{h}{2}}}$ and run it again.

Compare the ratio you get to the theoretical ratio.