

Spring 2009 Math 152

Week in Review 4

courtesy: Amy Austin

(covering sections 8.4 - 8.8)

Section 8.4

1. Integrate $\int \frac{x}{x^2 - 3x - 4} dx$
2. Integrate $\int_2^3 \frac{x^2 + 1}{x^2 - x} dx$
3. Integrate $\int \frac{x + 1}{(x - 1)^2(x + 2)} dx$
4. Integrate $\int \frac{3x^2 - 4x + 5}{(x - 1)(x^2 + 1)} dx$

Section 8.8

5. a.) Use the midpoint rule with $n = 5$ to approximate $\int_1^6 \frac{1}{x^2} dx$. Draw the approximating rectangles.
b.) What is the exact error in using this approximation?
6. a.) Use the Trapezoid rule with $n = 4$ to approximate $\int_0^1 e^{x^2} dx$. Draw the approximating trapezoids.
b.) Find an upper bound for the error in this approximation.
7. How large do we need to choose n so that the approximation S_n to $\int_1^3 \ln x dx$ is accurate to within $\frac{1}{1000}$?