

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  $\frac{1}{1000}$ ?