Homework 1
Due date: 8/28/02

Part I

1. Use substitution to reduce the integral

\[ \int \frac{2t - 1}{t^2 - t + 2} \, dt \]

to one of the integrals in the Table of Integrals on page 413 or to evaluate it (your choice).

2. Use substitution to reduce the integral

\[ \int \frac{1}{\sqrt{5x + 1}} \, dx \]

to one of the integrals in the Table of Integrals on page 413 or to evaluate it (your choice).
3. Evaluate the integral
\[ \int_0^2 e^{-2x} \, dx. \]

4. A company sells a seasonal product that has a daily revenue modeled by
\[ R = 0.06t^2(365 - t)^{1/2} + 1250, \quad 0 \leq t \leq 365. \quad (t \text{ is time in days}) \]

Find the average daily revenue over the period of 1 year. (Recall that the average value of a function \( f \) on an interval \([a, b]\) is given by the expression \( \frac{1}{b-a} \int_a^b f(x) \, dx \).)