Math 153-37, Mr. Church, Homework 3
Due at the beginning of class on Friday, January 16.
Please staple your homework.

1. Exercise 8.4.18.

2. Compute $\displaystyle\int \frac{x}{\sqrt{a^2 - x^2}}\,dx$:

    (a) using trigonometric substitution.

    (b) using the substitution $u = a^2 - x^2$.

3. Decompose $\dfrac{x^2 - 5x}{(x - 1)^3}$ into partial fractions.

4. Compute $\displaystyle\int \frac{x^2 + 1}{x(x^2 - 1)}\,dx$.

5. Exercise 9.1.2.

6. Exercise 9.1.5.

7. Exercise 9.1.8.

8. (a) Find the general solution to the differential equation $y' + y = x$.

    (b) Find the particular solution to this equation determined by the initial condition $y(0) = 2$.