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 \( \int \frac{x}{\sqrt{a^2 - x^2}} \, dx \):
   (a) using trigonometric substitution.
   (b) using the substitution \( u = a^2 - x^2 \).

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

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

5. Exercise 9.1.2.

6. Exercise 9.1.5.


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 \( y(0) = 2 \).