Please provide complete and well-written solutions to the following exercises.

Due September 19, at the beginning of class.

Assignment 4

Exercise 1. Using trigonometric substitution, compute

$$\int \frac{x^2}{\sqrt{9-x^2}}\,dx.$$

Exercise 2. Using trigonometric substitution, compute

$$\int \frac{dx}{\sqrt{25x^2-4}}.$$

Exercise 3. Evaluate the following integrals using the method of partial fractions.

$$\int \frac{dx}{x^2+2x}.$$

$$\int_{1/2}^{1} \frac{y+4}{y^2+y}dy.$$

$$\int \frac{4x^2-21x}{(x-3)^2(2x+3)}dx.$$

Exercise 4. Compute the following integral

$$\int \frac{xdx}{(x^2-1)^{3/2}}.$$

Exercise 5. Compute the following integral:

$$\int \ln(x^4-1)dx.$$