Practice Exercises

1. Evaluate the integral by using the method of partial fractions to evaluate the integral.

$$\int \frac{x^2+3x+2}{2x^3+5x+3x}dx.$$

2. Show the differential equation.

$$\frac{dy}{dx}+2xy=x$$

3. Solve $y'+3xy=cosx.$
4. Find the sum of the geometric series.

$$6-4+\frac{8}{3}-\frac{16}{9}+\cdots$$

5. Find the sum of the series.

$$\sum_{n=1}^{\infty}\left(\frac{6}{n(n+3)}+\frac{1}{4^n}\right)$$

6. Find $\int \frac{dx}{x^2-4}$.