

106 Math Assignment

Section 41548

Due date May 16, 2017

April 16, 2017

First Question

Evaluate the following integrals

1. $\int \frac{\sqrt{x^2+1}-\sqrt{x^2-1}}{\sqrt{x^4-1}} dx.$
2. $\int \frac{\cos x - \sin x}{\cos x + \sin x} dx.$

Second Question

If $\int_1^e \ln x dx = 1$ and $\int_1^{e^2} \ln x dx = 1 + e^2$, then find $\int_e^{e^2} \ln x dx$.

Third Question

Suppose that $\frac{dy}{dx} = (4x^3 + 3x)\sqrt{x^4 + \frac{3x^2}{2} + 1}$ and that $y = \frac{2}{3}$ when $x = 0$. Find y when $x = 1$.