Homework2

PS 2010

Due: Sep 19th, 8:59:59am

Notice: The grading will mainly focus on the steps not the final results. This means even your final results are wrong but you follow the correct steps, you will be given the full score.

1 Computing Indefinite Integral

- Determine $f(x)$ given $f^{'}(x) = 6x^8 - 20x^4 + x^2 + 9$

- $\int 12 dx$

- $\int x^3 - \frac{\mathbf{e}^{-x} - 4}{\mathbf{e}^{-x}} dx$

- $\int 4\mathbf{e}^z + 15 - \frac{1}{6z} dz$

- $\int (8x - 12) \left(4x^2 - 12x\right)^4 dx$
  Hint: Integration by substitution

- $\int \frac{3x}{1 + 9x^2} dx$

- $\int \left(7x - 2x^3\right) \mathbf{e}^{x^4 - 7x^2} dx$

- $\int x^2 \ln|x| dx$

2 Computing the definite Integral

- $\int_0^6 (2 + 5x)\mathbf{e}^{\frac{1}{3}x} dx$
  Hint: Integral by parts

- $\int_1^3 3\sqrt{x} dx$