

Assignment II - CALCULUS I

Dr. Duong Thanh PHAM
Deadline: 11pm, July 1st 2023

Exercise 1. Evaluate the indefinite integral.

(i) $\int e^x \sin(e^x) dx$

(iii) $\int \frac{e^z + 1}{e^z + z} dz$

(ii) $\int (x+1)\sqrt{2x+x^2} dx$

(iv) $\int \frac{\sin x}{1 + \cos^2 x} dx$

Exercise 2. Evaluate the definite integral.

(i) $\int_0^\pi x \cos(x^2) dx$

(iii) $\int_{\pi/6}^{\pi/3} \cos x \ln(\sin x) dx$

(ii) $\int_1^2 x\sqrt{x-1} dx$

(iv) $\int_1^2 \frac{e^{1/x}}{x^2} dx$

Exercise 3. Evaluate the integrals.

(i) $\int_0^\pi x \cos 5x dx$

(iii) $\int \ln(2x+1) dx$

(ii) $\int_1^2 r e^{r/2} dr$

(iv) $\int_1^2 \frac{\ln x}{x^2} dx$

Exercise 4. Evaluate the integrals.

(i) $\int_0^\pi \sin^3 x \cos^2 x dx$

(iii) $\int \frac{x^3}{\sqrt{x^2+9}} dx$

(ii) $\int_0^4 x \cos^2 x dx$

(iv) $\int \sqrt{x^2+2x} dx$

Exercise 5. Evaluate the following integral

$$\int_0^\infty x e^{-x^2+1} dx.$$