ASSIGNMENT

Course Code: MAT 101
Course Title: Mathematics I
Topic Name: Integration

Submitted To:

Name: Md. Shakib Hossain
Designation: Lecturer in Mathematics
Department: Computer Science & Engineering
Daffodil International University

Submitted By:

Name: Alif Ahmad
ID: 251-15-615
Section: 68_N
Semester: Spring 2025
Department: Computer Science & Engineering
Daffodil International University

Submission Date: 2025-04-17

Integration

① $\int (x^2 + 5e^{3x} + \sin 2x + \frac{1}{x})\,dx$

② $\int \sin^2 x\,dx$

③ $\int \frac{1}{2x^2+4x+12}\,dx$

④ $\int x e^x\,dx$

⑤ $\int x^2 \sin x\,dx$

⑥ $\int \sin x\, e^x\,dx$

⑧ $\int x\, e^{x^2}\,dx$

⑨ $\int \sin^3 x\,dx$

⑩ $\int_0^{\pi/2} (x^2+1)\cos x\,dx$

⑪ $\int_0^1 (x^2 + e^{5x} + \frac{1}{1+x^2})\,dx$

⑫ $\int_0^{\pi/2} x \cos x\,dx$

⑬ $\int_0^{\pi/2} \sin^5 x\,dx$

⑭ $\int_0^1 \frac{1}{2x^2+4x+10}\,dx$

⑮ $\int_0^{\pi/2} \frac{\cos^5 x}{\sec^5 x + \tan^5 x}\,dx$

⑯ $\int_0^{\pi/2} \frac{\sqrt{\cos x}}{\sqrt{\sin x} + \sqrt{\cos x}}\,dx$

⑰ $\int_0^{\pi/2} \frac{1}{1+\cos^2}\,dx$

⑱ $\int_0^{\pi/2} \frac{\sin^2 x}{\sin x + \cos x}\,dx$

⑲ $\int_0^a \sqrt{a^2 - x^2}\,dx$

⑳ Find the area bounded by $x^2 + y^2 = 16$

㉑ Find the area bounded by $\frac{x^2}{9} + \frac{y^2}{4} = 1$