National University

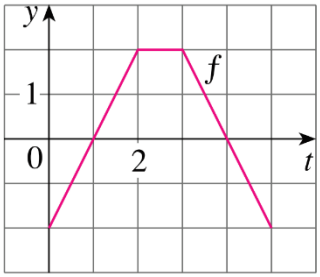
of Computer & Emerging Sciences Peshawar Campus

Program: BS (SE & AI)
Semester: Fall-2022
Course: MT1003-Calculus & Analytical Geometry

Examination: Assignment # 03
Total Marks: 10, Weightage: 2.5
Date of Submission: 13 / 12 / 2022

Note: Attempt all questions.

Q1. The graph of f consists of the three line segments shown. If $g(x) = \int_0^x f(t)\,dt$, find $g(4)$ and $g'(4)$.



Q2.

Find the derivative of the following function

$$y = \sin x \tan x \ln x^3\, 2^x$$

Q3. Prove $\int \frac{dx}{x^2 - a^2} = \frac{1}{2a} \ln \left| \frac{x - a}{x + a} \right| + C$ [Hint: Partial fraction]

Q4. Evaluate $\int \sin(8x) \cos(5x)\,dx$

The End