



Quiz-2 (Summer-2026)

Student ID:

Student Name:

Course Code: MAT 101

Course Title: Mathematics I

Section: 24-A

Date: 23/07/2026

Full Marks: **15 Marks**Time: **30 min**

Answer all the following questions

Question 1: Compute the derivative $\left(\frac{dy}{dx}\right)$ of the following functions:

i) $y = 2 \cos x - 3e^{4x} + 5$

[1 mark]

ii) $y = x^{\tan x}$

[2 marks]

iii) $y = \frac{\sec x}{1+x^2}$

[2 marks]

iv) $y = \ln(\sin x^3)$

[3 marks]

Question 2: Compute the derivative $\left(\frac{dy}{dx}\right)$ of the parametric equation $x = \sqrt{t}, y = at^4$.

[3 marks]

Question 3: Find the intervals on which $f(x) = x^3 - 12x - 5$ is increasing and decreasing.

[4 marks]

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