

Mathematics 1110H (Section A) – Calculus I: Limits, Derivatives, and Integrals
TRENT UNIVERSITY, Fall 2024

Quiz #3

Choice!

*Wednesday, 25 September.**

Please do *one* (1) of questions **1** and **2**. If you do both, only the first one spotted by the grader will be marked.

1. Use the standard version or the game version of the ε - δ definition of limits to verify that $\lim_{x \rightarrow 0} (x + 1) \neq 2$. [5]

Hint: If you don't remember the game version of the ε - δ definition of limits from class, or even if you do, see the handout *An Alternate Version of the ε - δ Definition of Limits*, which you can find in the folder *Textbook and Handouts* in the Course Content section on Blackboard.

2. Find a single line which is tangent to each of the curves $y = \sin(x)$, $y = \cos(x)$, $y = \sec(x)$, and $y = x^3 + 1$, though not necessarily to all of them at the same point. Explain why the line you give does the job. [5]

Hint: Draw the graphs of these functions to get an idea of what might work.

* Please submit your solutions, preferably as a single pdf, via Blackboard's Assignments module before midnight. If that fails, please submit them to the instructor on paper or via email to sbilaniuk@trentu.ca as soon as you can.