Name: _____ Student Number: _____

Mathematics 1110H, TRENT UNIVERSITY, Fall 2025

Test #2 for Sections F02 and F04. *Friday, 10 October.* Time: 20 minutes.

Instructions
- Write your name and student number at the top.
- Use only this sheet of paper, including the back side. If you need more paper, ask for it.
- You may use an aid sheet, A4- or letter-size with whatever you want written on all sides, and a calculator, with no restrictions beyond not being able to communicate with other devices.
- **Do both (2) of questions 1 and 2.**

1. Use the limit definition of the derivative to find $f'(x)$ for $f(x) = x^2 + 2x + 1$. *[5]*

2. Use the derivative rules to compute $f'(x)$ if $f(x) = \sec^2(\arctan(x))$. Simplify your answer as much as you reasonably can. *[5]*