Mathematics 1110H – Calculus I: Limits, derivatives, and Integrals
TRENT UNIVERSITY, Fall 2020

Quiz #1
Tuesday, 22 September.

Available on Blackboard from 12:00 a.m. on Tuesday, 22 September.
Due on Blackboard by 11:59 p.m. on Tuesday, 22 September.
Solutions will be posted on Thursday, 23 September.

Scans or photos of handwritten work are entirely acceptable so long as they are legible and in some common format; solutions submitted as a single pdf are preferred, if you can manage it. If you can't submit your solutions on time via Blackboard's Assignments module for some reason, please email them to the instructor at: `sbilaniuk@trentu.ca`

Reminder: Per the course outline, *all work submitted for credit must be written up entirely by yourself, giving due credit to all relevant sources of help and information.* For this quiz, you are permitted to use your textbook and all other course material, from this and any other mathematics course(s) you have taken or are taking now, but *you may not use any other sources or aids, nor give or receive any help*, except to ask the instructor to clarify questions and to use a calculator (any that you like).

Do *both* of the following problems:

1. Use the ε–δ definition of limits* to verify that $\lim_{x\to 0} \dfrac{x}{1+\sin^2(x)} = 0$. *[2.5]*

2. Compute† $\lim_{x\to 1} \dfrac{1-\sqrt{x^2+2x+2}}{(x+1)^2}$. *[2.5]*

---

* Whichever of the standard or game version happens to be your preference.

† Using algebra and the practical rules for computing limits. You do *not* have to verify you are correct using the ε–δ definition of limits. (Unless you're a mathochist ... :-)