

## Mathematics 1110H – Calculus I: Limits, derivatives, and Integrals

TRENT UNIVERSITY, Winter 2021

### Quiz #8

*Tuesday, 16 March.*

*Available on Blackboard at 12:00 a.m. Tuesday morning.*

*Due on Blackboard by 11:59 p.m. Tuesday night.*

*Solutions will be posted on Thursday, 18 March.*

**Submission:** Scanned or photographed solutions are fine, so long as they are legible. Please try to make sure that they are oriented correctly – if they are sideways or upside down, they're rather harder to mark! Submission as a single pdf is strongly preferred, but multiple files and/or other common formats are probably OK in a pinch. Please submit your solutions via Blackboard's Assignments module; if Blackboard does not acknowledge a successful upload, please try again. As a *last* resort, email your solutions to the instructor at: [sbilaniuk@trentu.ca](mailto: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).

Show all your work! Simplify where you conveniently can.

1. A rectangle has its bottom left corner at the origin, its top left corner on the  $y$ -axis, its bottom right corner on the  $x$ -axis, and its top right corner on the part of the parabola  $y = 6x - 4x^2$  that is above the  $x$ -axis. Find the maximum area of such a rectangle.  
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