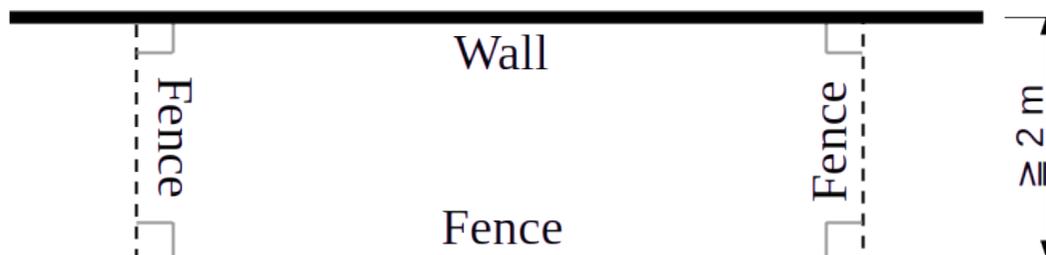


Mathematics 1110H (Section A) – Calculus I: Limits, Derivatives, and Integrals
TRENT UNIVERSITY, Fall 2024

Quiz #6
Max and Min meet Words and Formulas
Wednesday, 16 October.*



1. A rectangular enclosure is to be made using a long existing wall as one side of the enclosure and fencing off the other three sides, with the requirement that the side opposite the wall be at least 2 m from the wall. What is the maximum area of such an enclosure if the total amount of fencing available is 60 m ? [3]
2. Between 0C and 30C the volume V , in cubic centimetres, of 1 kg of water at temperature T is approximately given by the formula

$$V = 999.87 - 0.06426T + 0.0085043T^2 - 0.0000679T^3.$$

Find the temperature in the given range at which water has its maximum density. [2]

* 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.