

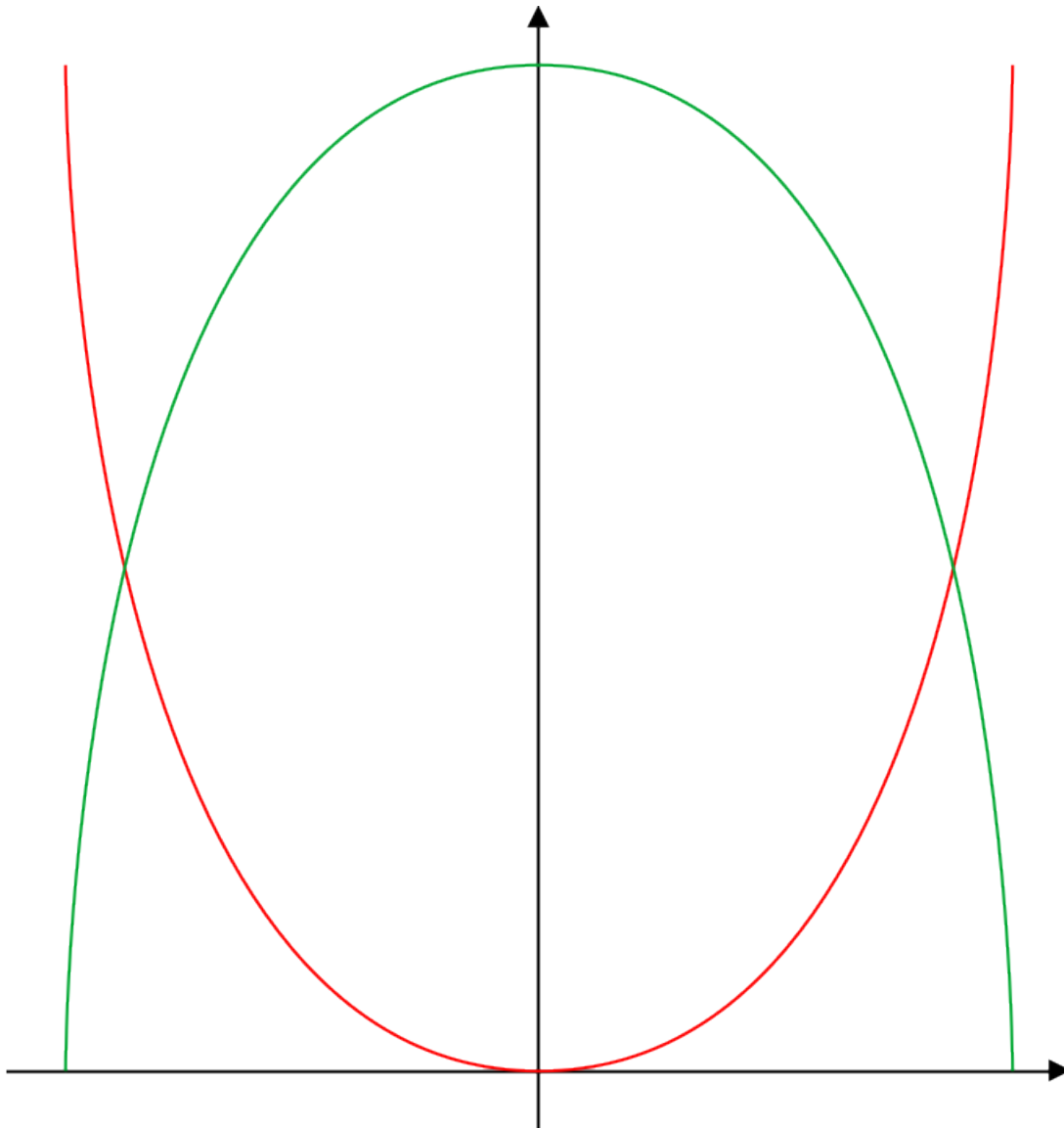
Mathematics 1110H – Calculus I: Limits, Derivatives, and Integrals

TRENT UNIVERSITY, Fall 2023

Assignment #6

An Area Problem

Due* just before midnight on Wednesday, 6 December.



1. Find the real number $a > 0$ such that the area of the finite region below the parabola $y = a - x^2$ and above the parabola $y = x^2$ is exactly $\frac{64}{3}$. [10]

Hint: This could be done entirely by hand. If you'd rather not, though, it is worth noting that SageMath can integrate functions, both symbolically and numerically, and solve various kinds of equations.

* You should submit your solutions via Blackboard's Assignments module, preferably as a single pdf. If submission via Blackboard fails, please submit your work to your instructor by email or on paper.