

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

TRENT UNIVERSITY, Fall 2024

Optional Quiz #11[†]

Crank up the volume a little bit more!

*Wednesday, 4 December.**

Please do the following problems by hand, showing all your work. Feel free to check your work by turning SageMath or other software loose.

Consider the region between $y = \arctan(x^2)$ and the x -axis for $0 \leq x \leq 1$, and the solid obtained by revolving this region about the y -axis.

1. Sketch the region. [0.5]
2. Sketch the solid. [0.5]
3. Find the volume of the solid. [4]

Sonnet xlv

Euclid alone has looked on Beauty bare.
Let all who prate of Beauty hold their peace,
And lay them prone upon the earth and cease
To ponder on themselves, the while they stare
At nothing, intricately drawn nowhere
In shapes of shifting lineage; let geese
Gabble and hiss, but heroes seek release
From dusty bondage into luminous air.
O blinding hour, O holy, terrible day,
When first the shaft into his vision shone
Of light anatomized! Euclid alone
Has looked on Beauty bare. Fortunate they
Who, though once only and then but far away,
Have heard her massive sandal set on stone.

Edna St. Vincent Millay

[†] Best nine quizzes still count for the final mark; doing this quiz may let you improve your mark by dropping the lowest two quizzes instead if just one.

* 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.