

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

TRENT UNIVERSITY, Summer 2026 (S62)

Quiz #9 – Definitely Integration

*Due just before midnight on Wednesday, 22 July.**

Evaluate any *four* (4) of the following definite integrals by hand. Please show all the main steps.

1. $\int_0^{\pi/2} 2 \sin\left(\frac{x}{2}\right) \cos\left(\frac{x}{2}\right) dx$ [1.25]

2. $\int_0^1 \frac{2}{\sqrt{x} + x\sqrt{x}} dx$ [1.25]

3. $\int_2^3 \frac{x^2 - 5x + 4}{x - 4} dx$ [1.25]

4. $\int_0^{1/\sqrt{\ln(41)}} \ln(41^x) dx$ [1.25]

5. $\int_0^{\pi/4} x \sec^2(x) dx$ [1.25]

6. $\int_0^1 \frac{x^3}{e^{x^2}} dx$ [1.25]

Computer Haiku[†]

Many fewer bits;
A feat of compression;
I pray: no data lost.

Three things are certain:
Death, taxes, and lost data.
Guess which has occurred.

The code was willing,
It considered your request,
But the chips were weak.

There is a chasm
of carbon and silicon
the software can't bridge

Chaos reigns within.
Reflect, repent, and reboot.
Order shall return.

* You should submit your solutions via Blackboard's Assignments module, preferably as a single pdf. If that fails, please submit directly to the instructor on paper or via email to sbilaniuk@trentu.ca. You may work with others, use whatever tools you like, and look things up, so long as you write up your submission by yourself and give due credit to your collaborators and any tools or sources you actually used.

[†] Mostly from a *Salon* magazine contest. Arranged to tell a story.