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

Quiz #9
Integration
Wednesday, 20 November.[*]

Evaluate each of the following definite integrals by hand using antiderivatives. Please show all your work. *Hint*: Simplify first ...

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

2. $\displaystyle\int_{-1}^{1} \frac{2}{1+x^2}\,dx$ *[1]*

3. $\displaystyle\int_2^3 \frac{x^2-5x+4}{x-4}\,dx$ *[1.5]*

4. $\displaystyle\int_0^{1/\sqrt{\ln(41)}} \ln\left(41^x\right)\,dx$ *[1.5]*

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.

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[*] 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.

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