

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

TRENT UNIVERSITY, Summer 2026 (S62) [reading course]

Mini-Assignment Quiz #1

*Due just before midnight on Friday, 19 June.**

1. Use the ε - δ definition of limits to verify that $\lim_{x \rightarrow -3} (2x + 3) = -3$. [2.5]

NOTE. You may use the standard version of the definition or the alternate game form of the definition, as you prefer.

2. Work out $\lim_{t \rightarrow 1} \frac{t - 1}{t^4 - 1}$ using the practical rules for computing limits, as codified in the Theorems of Section 2.3. [2.5]

Hint: Algebra!

Unified Field Theory

In the beginning there was Aristotle,
And objects at rest tended to remain at rest,
And objects in motion tended to come to rest,
And soon everything was at rest,
And God saw that it was boring.
Then God created Newton,
And objects at rest tended to remain at rest,
But objects in motion tended to remain in motion,
And energy was conserved and momentum was conserved
and matter was conserved,
And God saw that it was conservative.
Then God created Einstein,
And everything was relative,
And fast things became short,
And straight things became curved,
And the universe was filled with inertial frames,
And God saw that it was relatively general,
but some of it was especially relative.
Then God created Bohr,
And there was principle,
And the principle was quantum,
And all things were quantified,
But some things were still relative,
And God saw that it was confusing.
Then God was going to create Furgeson,
And Furgeson would have unified,
And he would have fielded a theory,
And all would have been one,
But it was the seventh day,
And God rested,
And objects at rest tend to remain at rest.

By Tim Joseph (from ANALOG, December 1975).

* 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.