

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

TRENT UNIVERSITY, Fall 2025

Workshop Problems for 2025-09-26

These three problems are similar to the ones on the test. On the test, they would be expected to do their choice of two of them.

- Find the x -intercepts (if any) and the location of the tip of the parabola $y = x^2 - 4x - 21$. [x -intercepts at $x = -3$ and $x = 7$ and tip at $(2, -25)$.]
- Use the ε - δ definition of limits to verify that $\lim_{x \rightarrow 1} (-3x + 9) = 6$. [$\delta = \frac{\varepsilon}{3}$ (or less)]
- Use the practical rules for computing limits to evaluate $\lim_{x \rightarrow 2} \frac{x^2 - x - 20}{x^3 + 9x^2 + 20x}$. [= $\frac{9}{4}$]