

MTH 131-001 Final Exam Information

The 100-point final exam will be posted Tuesday, May 12, by 10 am. It will be due in Blackboard by **Saturday, May 16, at 8 am.**

Your final exam will consist of twenty 5-point problems---one problem from each of the section objectives listed below. Each answer will have the form of a single number, $\pm\infty$, DNE, a single word, or a short phrase. The answer itself will be worth **up to 2** points. The supporting work or explanation will be worth **up to 3** points. The supporting work will be scored as follows:

- 0 points - No work or no correct work/explanation
- 1 point - Some correct ideas and work/explanation
- 2 points - The ideas and work/explanation are mostly correct
- 3 points - The ideas, notation, and work/explanation are correct

Final exam skill list

1. Estimate and evaluate one-sided limits. (Section 2.2)
2. Use algebraic techniques to resolve 0/0 indeterminate forms. (Section 2.3)
3. Use the definition of continuity to determine if a function is continuous at a point. (Section 2.4)
4. Interpret the derivative as the slope of a tangent line. (Sections 3.1 & 3.2)
5. Evaluate derivatives (and higher-order derivatives) using basic differentiation rules. (Section 3.3)
6. Solve problems involving motion along a line. (Section 3.4)
7. Use the chain rule to differentiate compositions of functions. (section 3.6)
8. Use implicit differentiation to find the derivative of an implicitly-defined function. (Section 3.8)
9. Solve application problems involving related rates. (Section 4.1)
10. Determine the linearization of a function at a point, and use it to approximate function values near the point. (Section 4.2)
11. Find the absolute extreme values of a continuous function on a closed, bounded interval. (Section 4.3)
12. Use the second derivative to find intervals on which the graph of a function is concave up/down. (Section 4.5)
13. Use calculus techniques to solve application problems involving optimization. (Section 4.7)
14. Apply L'Hopital's rule to resolve indeterminate forms. (Section 4.8)
15. Use basic integration rules to evaluate indefinite integrals. (Section 4.10)
16. Compute a Riemann sum for a function on an interval. (Section 5.1)
17. Use properties of the definite integral to simplify and evaluate integrals. (Section 5.2)
18. Use area to evaluate definite integrals. (Section 5.2)
19. Use and evaluate definite integrals in applications involving area and average value. (Section 5.3)
20. Use substitution to evaluate definite integrals. (Section 5.5)