MTH 131-600 Final Exam Information

Our final exam is scheduled for our last class period on Wednesday, December 14. The final exam will consist of twenty 5-point problems. 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

The final exam will cover the objectives listed below. Focus your studying on these skills.

Final exam skill list

1. Estimate limits graphically and numerically. (Sec 2.2/Lec 3)
2. Determine one-sided and two-sided infinite limits. (Sec 2.2/Lec 8)
3. Use algebraic techniques to resolve 0/0 indeterminate forms. (Sec 2.3/Lec 5)
4. Use the definition of continuity to determine if a function is continuous at a point. (Sec 2.4/Lec 7)
5. Classify discontinuities. (Sec 2.4/Lec 7)
6. Use the limit definition of derivative to evaluate a derivative. (Sec 3.1-3.2/Lec 11)
7. Find equations of tangent lines. (Sec 3.1-3.2/Lec 11)
8. Evaluate derivatives (and higher-order derivatives) using basic differentiation rules. (Sec 3.3/Lec 12-13)
9. Evaluate derivatives of trigonometric functions. (Sec 3.5/Lec 12-13)
10. Use the chain rule to differentiate compositions of functions. (Sec 3.6/Lec 15)
11. Solve various application problems involving rates of change. (Sec 3.4/Lec 14)
12. Evaluate derivatives involving the inverse trigonometric functions. (Sec 3.7/Lec 17)
13. Compute the derivative of a logarithmic function of any base. (Sec 3.9/Lec 18)
14. Determine the linearization of a function at a point, and use it to approximate function values near the point. (Sec 4.2/Lec 20)
15. Find the critical numbers of a function. (Sec 4.3/Lec 22)
16. Find the absolute extreme values of a continuous function on a closed interval. (Sec 4.3/Lec 22)
17. Use the first derivative test to locate relative extrema. (Sec 4.5/Lec 24)
18. Apply the second derivative test to classify relative extrema. (Sec 4.5/Lec 25)
19. Apply L'Hopital's rule to resolve indeterminate forms. (Sec 4.8/Lec 28)
20. Use basic integration rules to evaluate indefinite integrals. (Sec 4.10/Lec 30)
21. Compute a Riemann sum for a function on an interval. (Sec 5.1/Lec 32)
22. Use the Fundamental Theorem of Calculus to evaluate definite integrals. (Sec 5.3/Lec 34)
23. Use and evaluate definite integrals in applications involving area and average value. (Sec 5.3/Lec 33)
24. Use the Fundamental Theorem of Calculus to differentiate functions defined by integrals. (Sec 5.3/Lec 35)
25. Use substitution to evaluate definite integrals. (Sec 5.5/Lec 36)