

## MTH 132-001 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---one problem from each of the section objectives listed below. Each answer will have the form of a single number, a mathematical expression, 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

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### Final exam skill list

1. Find the area of a bounded region between the graphs of two functions. (Section 2.1)
2. Use disks or washers to find the volume of a solid of revolution. (Section 2.2)
3. Use cylindrical shells to find the volume of a solid of revolution. (Section 2.3)
4. Use integration by parts to evaluate indefinite and definite integrals. (Section 3.1)
5. Evaluate integrals involving products and powers of sines and cosines. (Section 3.2)
6. Use trigonometric substitutions to evaluate indefinite and definite integrals. (Section 3.3)
7. Compute the partial fraction decomposition of a rational expression. (Section 3.4)
8. Use the trapezoid rule to approximate definite integrals. (Section 3.6)
9. Recognize improper integrals and determine why an integral is improper. (Section 3.7)
10. Determine whether a geometric series converges or diverges. If possible, find its sum. (Section 5.2)
11. Apply the  $n$ -th term test for divergence. (Section 5.3)
12. Use limit comparison to determine whether a series converges or diverges. (Section 5.4)
13. Determine when a series is absolutely or conditionally convergent. (Section 5.5)
14. Determine the radius and interval of convergence of a power series. (Section 6.1)
15. Differentiate and integrate power series term-by-term. (Section 6.2)
16. Find the Taylor polynomial for a function. (Section 6.3)
17. Find the Taylor series for a function. (Section 6.3)
18. Eliminate the parameter from a set of parametric equations. (Section 7.1)
19. Find the arc length of a parametric curve. (Section 7.2)
20. Convert points and equations between rectangular and polar coordinates. (Section 7.3)