SPECIAL HOMEWORK 1

MATH 2414 Calculus 2
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The following list of activities will be continuously amended until 5pm, Monday, July 22. Accumulate any tangible results from working these exercises, and submit the compilation for inspection at the beginning of the exam period on Wednesday, July 24. This will be graded in lieu of Worksheet #8, which will not be used in this course.

Unless otherwise instructed, use the methods presented in class. Use technology and work with others only when directed to do so.

1. Gather 10 different integral rules from an integral table of a Calculus textbook of your choosing, and cite the book you used. The rules must be different from those that appear in the table of WS#3. Verify each rule.

2. Calculate 10 indefinite and 5 definite integrals by the method of substitution as described in class. Gather these 15 different problems from a Calculus textbook of your choosing, and cite the book you used. Verify your results using computing technology, and cite the technology you used.

3. On 3 × 5 cards, make your own set of flashcards for WS#3 Appendix rules 1, 1’, 2’, 3’, 4’, 5, 6, 21’, 22, 26, 27, 28, 29, and 30. Put the integral on one side of the card and the antiderivative plus the constant of integration on the other. Make 3 cards for each rule, one in each of the variables u (as they appear in the Appendix), x (as they appear in the text) and t; A total of 42 cards. Shuffle and drill yourself on several occasions until you feel confident. Finally, have a classmate test you with your cards.

4. Gather 2 problems, one with axis of symmetry the x-axis and the other the y-axis, where you are to find the volume of a solid of revolution, and cite the book you used. The two must be of the special type that can be solved using either washers or shells. Find the two volumes using both methods; 4 calculations in all.

5. Calculate 10 indefinite and 5 definite integrals by the method of parts as described in class. Gather these 15 different problems from a Calculus textbook of your choosing, and cite the book you used. Verify your results using computing technology, and cite the technology you used.

6. Calculate 10 indefinite and 5 definite integrals by the method of partial fractions as described in class. Gather these 15 different problems from a Calculus textbook of your choosing, and cite the book you used. Verify your results using computing technology, and cite the technology you used.

7. Work 15 improper integral problems, at least one of each of the seven different kinds (1-7 on Worksheet #7). Gather these 15 different problems from a Calculus textbook of your choosing, and cite the book you used. Verify your results using computing technology, and cite the technology you used.

8. Read the material on numerical integration in a Calculus book of your choosing, and cite the text you used.

9. Read the material on arc length, surface area and the paradox of Gabriel’s Horn in a Calculus book of your choosing, and cite the text you used.