152 Review Assessment

Instructor: Wesley Pegden

September 5, 2007

Name: _____

Math classes taken at Rutgers and semester when taken: _____

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1. What is the derivative f' of $f(x) = 4x^3 + 2x + 1$?

2. What is the derivative f' of $f(x) = x + \sin(x)$?

3. What is the derivative of e^x?

4. What is the derivative of e^{x^2+2}?

5. What is the derivative of $f(x) = 2^x$?

6. What is the derivative of $f(x) = e^x(x^2 + 3)$?

7. What is the derivative of $\sin(x^3 + 3) + 2$?

8. What is an antiderivative of $f(x) = x^3 + 2x$?

9. What is an antiderivative of e^x?

10. What is an antiderivative of e^{2x}?

11. What is an antiderivative of $\sin(x) + x^2 + e^x$?

12. What is $\int_0^1 e^x$?

13. What is $\int_{-3}^3 3x^2 + 2x$?

14. In the space below, draw axes and sketch the graph of $x^2 + 1$. What is the area under the curve in the region $1 < x < 3$? (You need to setup and evaluate a definite integral to solve this problem).

15. Use differentiation to find the value of x where the function $f(x) = 3x^2 + 2$ attains its minimum. What is the minimum value of the function?

16. What is the fundamental theorem of calculus? I'm not looking for a word-for-word correct answer. At least try to give the right idea. (Remember, there are two parts. . . .)