

Name: _____

Math 1A Quiz Ch. 5

November 25, 2013

Write in complete sentences and show all work.

1. (4 points) Using sigma notation and a limit, write the definition of the definite integral $\int_a^b f(x) dx$ in terms of Riemann sums.

2. (6 points) Compute the definite integral:

$$\int_0^1 (x^2 + 1)e^{-x} dx$$

3. (6 points) Compute the indefinite integral:

$$\int \frac{2^t}{2^t + 3} dt$$

4. (6 points) Compute the indefinite integral:

$$\int \tan^{-1}(x) dx$$

5. (10 points) Find the derivative of the function:

$$F(x) = \int_x^{x^2} e^{t^2} dt$$

6. (6 points) Find the area enclosed between the curve $y = x^3 - x$ and the x -axis.

7. (6 points) Find the area between the curves $y = x^2$ and $y = 4x - x^2$.

8. (6 points) Use an integral to compute the volume of a circular cone with base of radius r and height h .