MATH 1A — Calculus Quiz 11 1 April 2015

You have 20 minutes to complete the quiz. No calculators.

Name:_____

1. (2 points) Let $f(x) = \frac{x^2}{3} + \sin x + e^{2x}$. Find an antiderivative $F(x)$ of $f(x)$ satisfying $F(0) = 0$.
$F(x) = \frac{x^3}{9} - \cos x + \frac{e^{2x}}{2} + C$.

$F(0) = -1 + \frac{1}{2} + C = 0$

$C = \frac{1}{2}$.

1 point for the antiderivative and 1 point for solving for the constant. Give partial credit as you want.

2. (3 points) Let $g(x) = x^2 + 1$. Compute the following integral using the method of Riemann sums:

$$\int_0^1 g(x)\ dx = \int_0^1 x^2\ dx + \int_0^1 1\ dx = \lim_{n\to\infty} \frac{1}{n} \sum_{i=1}^{n} \frac{i^2}{n^2} + \lim_{n\to\infty} \frac{1}{n} \sum_{i=1}^{n} \frac{1}{n} = \frac{1}{3} + 1$$

Here I think we should award a point for setting up the Riemann sums correctly, then a point for computing each piece correctly. Partial credit can be given in a reasonable way.