Math 1A 108 DIS Quiz 10 14 Nov 2018

Name: _____ Score: _____

Midterm 1 grade	
Midterm 2 grade	
Section grade	
Total grade so far	

1. Given each of the following conditions, find f. (2 points each)
   (a) $f'(x) = 4x^3 - 1, f(0) = 0$
   (b) $f'(x) = \sin x + \cos x, f(0) = 1$
   (c) $f''(x) = e^x - x, f(0) = 0, f(1) = 1$

2. (a) Estimate the integral $\int_0^1 x^3 dx$ using Riemann sums with $n = 5$, taking the sample points to be (i) the left endpoints, (ii) the right endpoints. (2 points)

   (b) Evaluate the integral in (a) by taking $n \to \infty$ in a Riemann sum. (Hint: $\Sigma_{i=1}^{n} i^3 = \frac{n^2(n+1)^2}{4}$) (2 points)

   (c) Show that the integral $\int_0^1 \frac{1}{x^2} dx$ does not exist by showing that a Riemann sum tends to infinity as $n \to \infty$. (Bonus 1 point)