Math 266B   **Winter 2006**   **Guide for Test 1**

The first test is in class on Friday 20 January.

Here are some sample questions, so that you have an idea of what to expect.

1.   (a) $\displaystyle \int e^x dx \ =$

      (b) $\displaystyle \int_0^2 x^3 dx \ =$

      (c) $\displaystyle \int x^{-3} dx \ =$

      (d) $\displaystyle \int 3x^{-1} dx \ =$

      (e) $\displaystyle \int_1^3 \sin(3) dx \ =$

      (f) $\displaystyle \int_0^{\pi} \sin(x) dx \ =$

      (g) $\displaystyle \int_5^5 \arctan(x) dx \ =$

      (h) $\displaystyle \int \frac{x^2 - 3}{x} dx \ =$

      (i) $\displaystyle \frac{d}{dx} \int_9^x \frac{\tan(t)}{\sqrt{t}} dt \ =$

      (j) $\displaystyle \frac{d}{dx} \int_4^2 \frac{\sqrt{t+1}}{\ln t} dt \ =$

2.   (a) $\displaystyle \int_2^3 x \sin(5x) \, dx \ =$

      (b) $\displaystyle \int_3^4 7x e^{x^2} \, dx \ =$

      (c) $\displaystyle \int 7x^2 e^x \, dx \ =$

      (d) $\displaystyle \int x^2 \sqrt{x-2} \, dx \ =$

3.   (a) Based on the definition of the definite integral, approximate

$$\int_1^3 \sin((x+2)^3) \, dx$$

      using $n = 4$ rectangles.

4. Compute the area of the region enclosed by the curves $y = (x-1)^2$ and $y = x + 1$.